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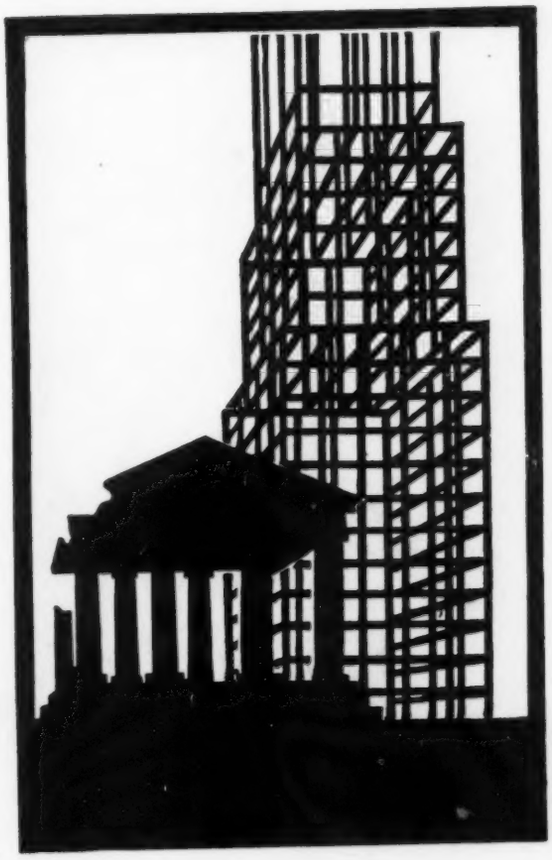
THE ARCHITECTURAL RECORD



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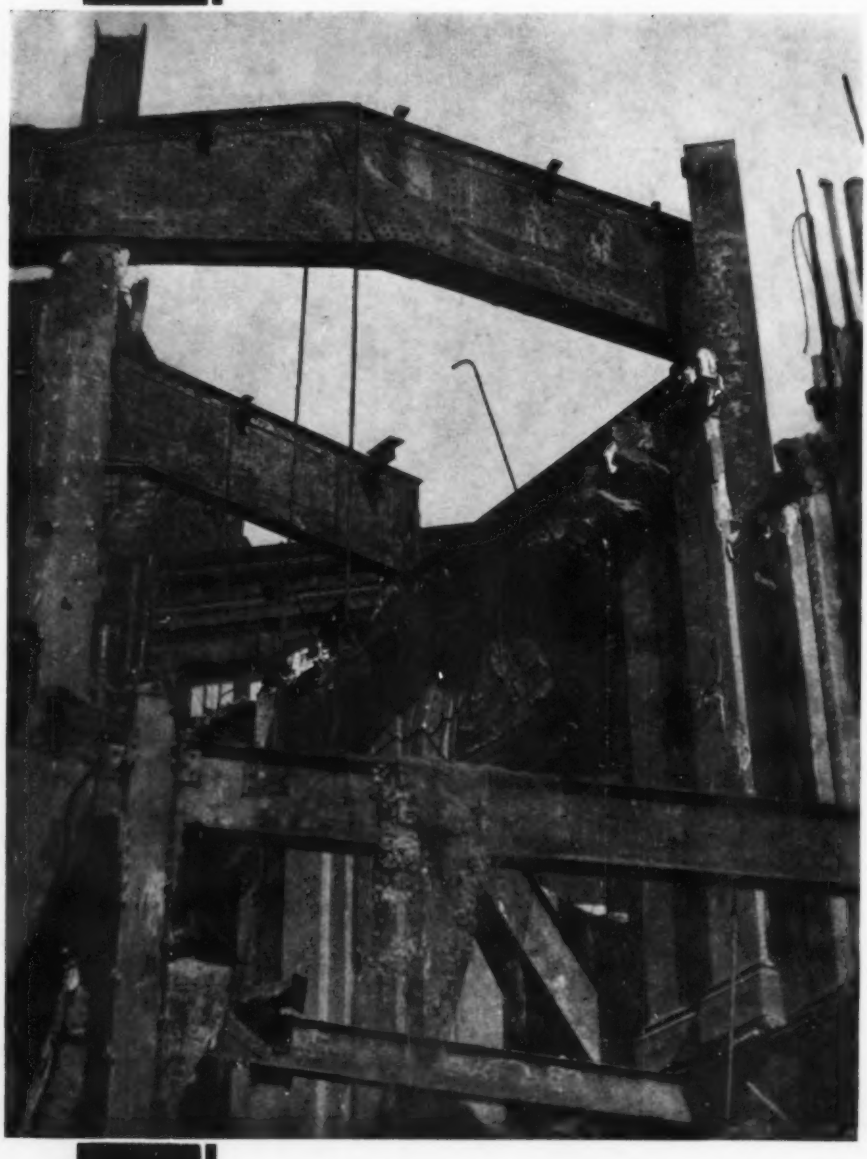

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THE ARCHITECTURAL RECORD

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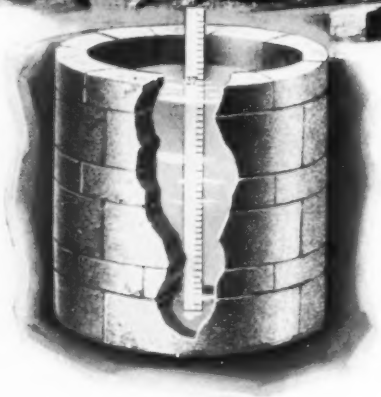
New Administration Building, Wellesley College, Wellesley, Mass. Harold Z. Klauder, Architect. L. B. Willcutt & Sons Company, Contractors. Truscon Waterproofing Paste used in all cement mortar for face brick to overcome dampness penetrating interior walls.



This specially constructed well was 37" deep by 22" wide. Its walls were an exact replica of the intended walls of the college building. The test conducted through means of this well proved conclusively the efficiency of Truscon Waterproofing protection.

An Interesting Test
A Logical Decision

The penetration of moisture through brick walls has been a definite problem for Wellesley College authorities. In the construction of the new Administration Building it was decided, if possible, to solve this problem for once and all. A well was constructed with walls the exact replica of the intended walls of the college building. All cement mortar used for the face brick was integrally waterproofed with Truscon Waterproofing Paste Concentrated. This well was filled with water, covered, and allowed to stand for 100 hours. At the end of that time the water depth was measured. It remained exactly the same as when the water was first poured in, proving the complete impermeability of cement mortar waterproofed with Truscon Waterproofing Paste. As a result of this test Truscon Waterproofing Paste was used for all cement mortar in this building.

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(INTEGRAL)

DECORATIVE PANELS
BY NATACHA CARLU

MONTREAL STORE
OF T. EATON & CO.

THE ARCHITECTURAL RECORD

AN ILLUSTRATED MONTHLY MAGAZINE
OF ARCHITECTURE

VOLUME 69 JUNE · 1931 NUMBER 6

THE T. EATON & CO. DEPARTMENT STORES IN TORONTO AND MONTREAL

By JACQUES CARLU, Architect of the Interiors

The new Toronto store and the addition to the Montreal department store of T. Eaton and Company, an organization with nearly 50,000 employees, were designed by the Canadian architects, Ross and Macdonald. The interior architectural treatment was entrusted to myself, and the mural decorations to my collaborator, Natacha Carlu.

THE MONTREAL STORE

The ninth floor of this store is given over to public use. The architectural program called for a restaurant serving 700 persons. Private dining rooms, foyer, lobbies and the like were included.

Elevator lobbies: As a transition between the selling floors and the new public rooms, the ninth floor elevator lobbies have been treated as long arcades. Display windows, inserted in Monel metal and framed in French marble, give a commercial touch to this space and remind the visitor that he still is within the walls of a department store.

The long cove with indirect lighting in the ceiling, the floor design, as well as the horizontal bands of gray and pink *Fabrikoid* used on the walls, lead the visitor from the elevator lobbies to the main foyer.

Foyer: From here a beautiful view over a large area of the city can be enjoyed. The entire outside wall has been treated to give as much window space as possible. Sunlight pours in, creating a cheerful atmosphere.

The foyer will occasionally be used as a tea room or lounge. The furnishings have been planned to answer these various purposes. Chairs, armchairs and couches are all of very simple design. The color scheme of the upholstery—mouse gray, black and pink—harmonizes with the black satinwood of the frame.

The tea tables have clear glass tops resting on blades of Monel metal. A central table of large dimensions is supported by two legs of glass in which light has been so placed as to illuminate vases of Austrian glass.

The draperies are made of *chenille* with horizontal bands of beige, pink and soft green. They are framed by curtain boxes of Monel metal.

A wide niche ornamented with vertical mirrors connects the foyer with the main dining room through doors of Monel metal, satin finished.

Restaurant: The central nave presents a clerestory ringed with horizontal windows

Main dining room with platform for fashion shows. Railings of Monel metal. Steps of black Belgian marble. Walls covered with horizontally-striped French fabric, beige and pink. Mural by Natacha Carlu.

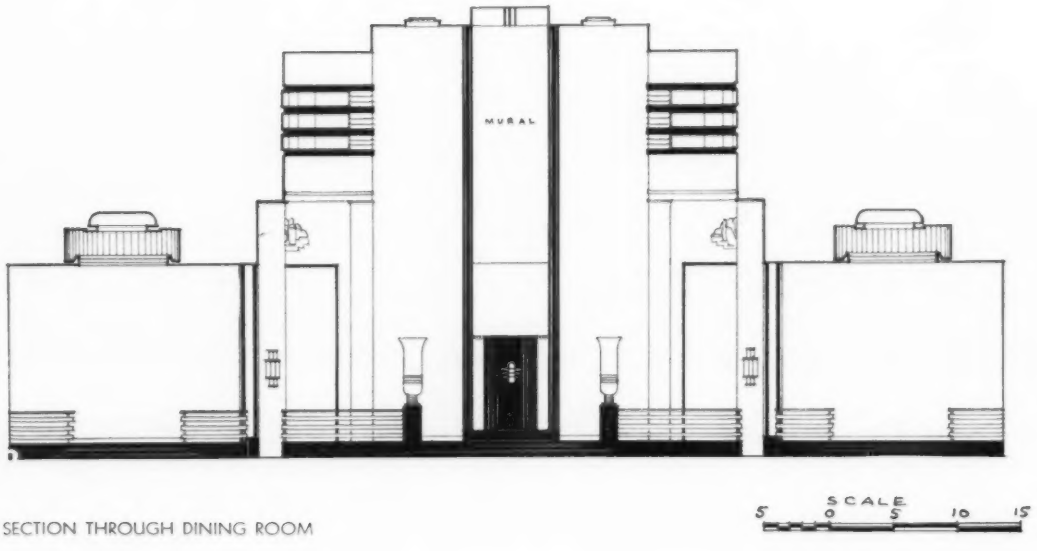
MONTREAL STORE OF T. EATON & CO.
JACQUES CARLU, ARCHITECT OF INTERIOR

Brigdens Ltd.

Main dining room. Horizontal windows in clerestory admit natural and artificial light through panels of opal glass. Columns of pink and gray marble. Floor of Ruboleum tiles.

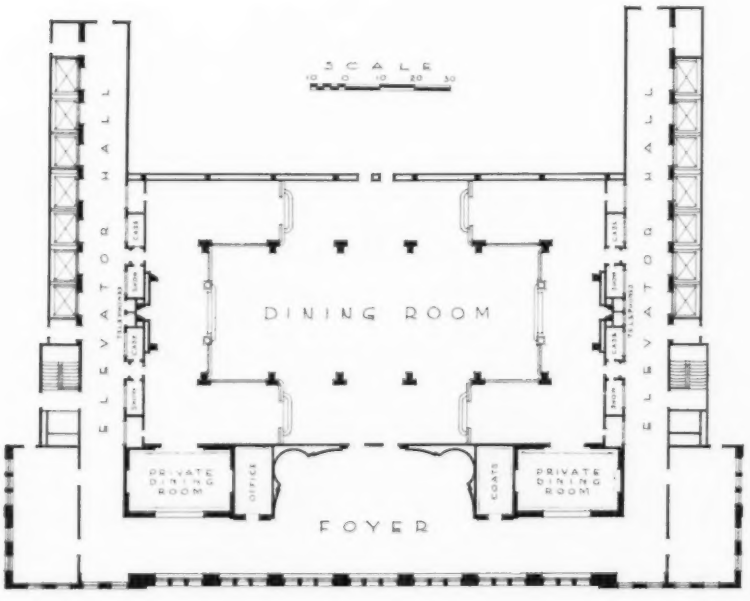
MONTREAL STORE OF T. EATON & CO.
JACQUES CARLU, ARCHITECT OF INTERIOR

PRIVATE DINING ROOM
MONTREAL STORE OF T. EATON & CO.
JACQUES CARLU, ARCHITECT OF INTERIOR



SECTION THROUGH DINING ROOM

ELEVATOR ARCADE
MONTREAL STORE OF T. EATON & CO.
JACQUES CARLU, ARCHITECT OF INTERIOR



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ENTRANCE TO COFFEE SHOP
TORONTO STORE OF T. EATON & CO.
JACQUES CARLU, ARCHITECT OF INTERIOR

admitting, through panels of opal glass, natural and artificial light well under control. The aisles are illuminated indirectly with light placed in inverted wells in the ceiling.

The nave is surrounded with a range of columns of *escalette breche* marble in pink and soft gray, supporting the wall where the clerestory windows are set. The lintels between the columns are decorated with bas-reliefs by Denis Gelin.

At either end and along each side are low raised balconies with railings of Monel metal, reached by steps of black Belgian marble. The walls are covered with a horizontally striped French fabric, beige and pink.

The floor is of *Ruboleum* tiles with an unusual pattern of colors. At both ends of the room are two huge vases of ceramics, resting on Belgian marble bases. These are illuminated from the inside.

Among the appliances incorporated in the design is the radio installation behind Monel metal grilles. Music from the outside can be enjoyed, or in the case of a large banquet or gathering, the voice of the speaker can be well distributed about the dining room.

The platforms at each end have been so arranged as to be transformed easily for staging fashion shows. Concealed electric spotlights have been provided to enhance the displays.

ONE OF FOUR PANELS BY NATACHA CARLU IN COFFEE SHOP
TORONTO STORE OF T. EATON & CO.
JACQUES CARLU, ARCHITECT OF INTERIOR

THE TORONTO STORE

The seventh floor is devoted entirely to public use and includes a large coffee shop, several private dining rooms, lounges, two elevator lobbies, a large foyer, and an auditorium concert hall with seating capacity of 1,500 persons. All furniture and accessories of decoration, lighting fixtures, ventilating grilles, glassware, silverware, china and even the waitresses' uniforms were executed according to our sketches or selected to obtain the greatest harmony.

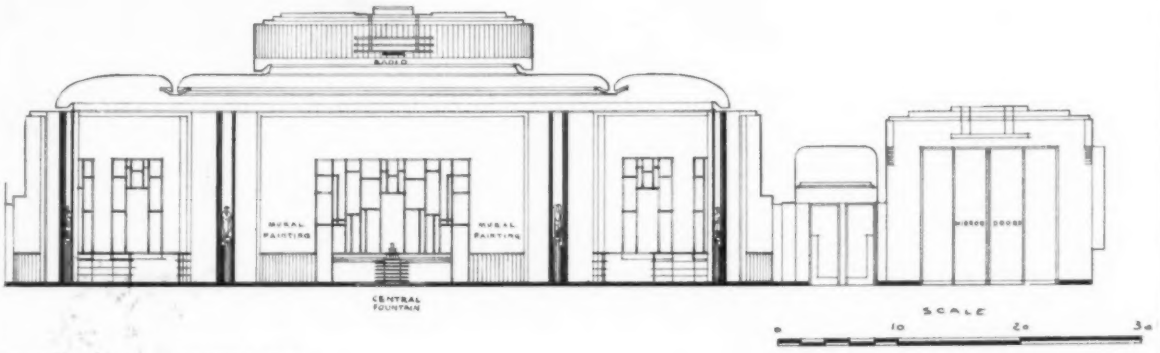
Coffee shop: This domed circular room is built, with recessed alcoves, within a square. It is on the north side of the building.

The color scheme consists of a soft lemon yellow background with black Carrara glass in the ceiling and in the vertical niches. The wide pilasters are of white enamel lacquer. The white enameled terra cotta statuettes were executed by the French sculptor, Denis Gelin. Monel metal, satin finish, was used for the doors, the trimming and all ventilating grilles and lighting fixtures. The fountain in the center of the room is of black and frosted glass. The furniture is of black satinwood; the chairs are upholstered with beige *Fabrikoid*.

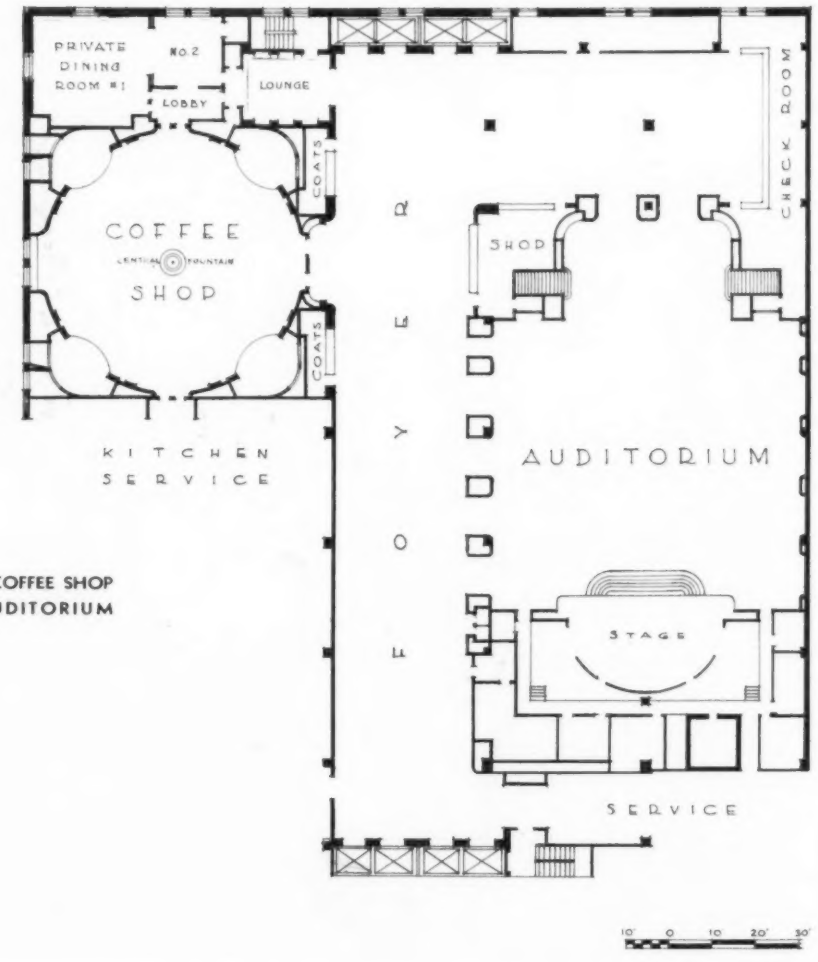
The four mural paintings by Natacha Carlu depict life in the village, the forest, the fields, and by the sea.

SCULPTURE BY DENIS GELIN IN COFFEE SHOP
TORONTO STORE OF T. EATON & CO.
JACQUES CARLU, ARCHITECT OF INTERIOR

DETAIL OF COFFEE SHOP
TORONTO STORE OF T. EATON & CO.
JACQUES CARLU, ARCHITECT OF INTERIOR



CROSS-SECTION OF COFFEE SHOP



PLAN OF COFFEE SHOP
AND AUDITORIUM

TORONTO STORE OF T. EATON & CO.
JACQUES CARLU, ARCHITECT OF INTERIOR

PLANNING THE COUNTRY CLUB

By WILLIAM PITKIN, Jr., and SEWARD H. MOTT, Landscape Architects

Assuming that the necessary acreage has been purchased for the purposes of the country club, the problem of first importance is the selection of the right site for the clubhouse and subsidiary buildings. Here the golf architect comes into the picture, but his services are subordinate to those of the landscape architect and architect.

The golf architect's problem is the relationship of the clubhouse to the first and tenth tees and to the ninth and eighteenth greens. Too often building committees have allowed the proposed layout of the course to determine the clubhouse location when, by a consideration for views, natural setting, grades and orientation, the arrangement of holes and order of playing, the courses might have been altered to take advantage of an ideal site for the clubhouse. The architect's duty to his client demands that he stress the importance of the architectural and landscape requirements as contrasted with the purely golfing needs.

When Warren G. Harding was nominated for President, a golf course was hurriedly designed and built at his home town of Marion, Ohio. Landscape architects called into consultation found work about to begin on a clubhouse to be located on open, uninteresting land on the extreme eastern edge of the property, from where all views over the course would be directly into the afternoon sun. The plan of the course contemplated cutting through and practically destroying a fine grove of trees on the western portion of the property. By a simple rearrangement of play on some holes and a radical change in one, the grove was utilized for the clubhouse, the approach drives were brought in on the side nearest the city, and delightful views were obtained over the course.

At the Franklin Hills Country Club near Detroit, a study by landscape architects called in by Albert Kahn, architect, resulted in moving the clubhouse several hundred feet and completely turning it about so that it overlooked a generous portion of the club's own property instead of facing distant views over land which was certain to be developed later as a residential subdivision of unknown and uncontrollable character.

The problems closely following that of location include the arrangement of approach and service drives, provision for parking and the layout of walks from men's and women's locker rooms to tees and greens and professional's quarters.

The drives will naturally vary with the shape and contour of the property, but they should be of ample width and with long flat curves for the fairly fast driving of the man late for his foursome or later yet for his dinner at home.

Service should be diverted entirely from all living portions of the clubhouse by well planted minor drives, and these should lead to definite enclosures where all service operations may be concealed.

Parking is as important in country club planning as in all other planning where large numbers of cars are to be stored during rush periods.

The requirements for parking—

1. *Ample size:* Saturday, Sunday, and holiday needs may demand space for a number of cars equalling 60 to 75 per cent of the number of members. Additional space will be needed for tournaments but this may be at a greater distance from the clubhouse.

2. *Accessibility:* Parking should be near drive entrance to clubhouse so passengers may be unloaded there and driver-member need not have far to go to and from his car. This space should also be reasonably close to men's locker room, especially where the club provides service in carrying clubs, bags, etc.

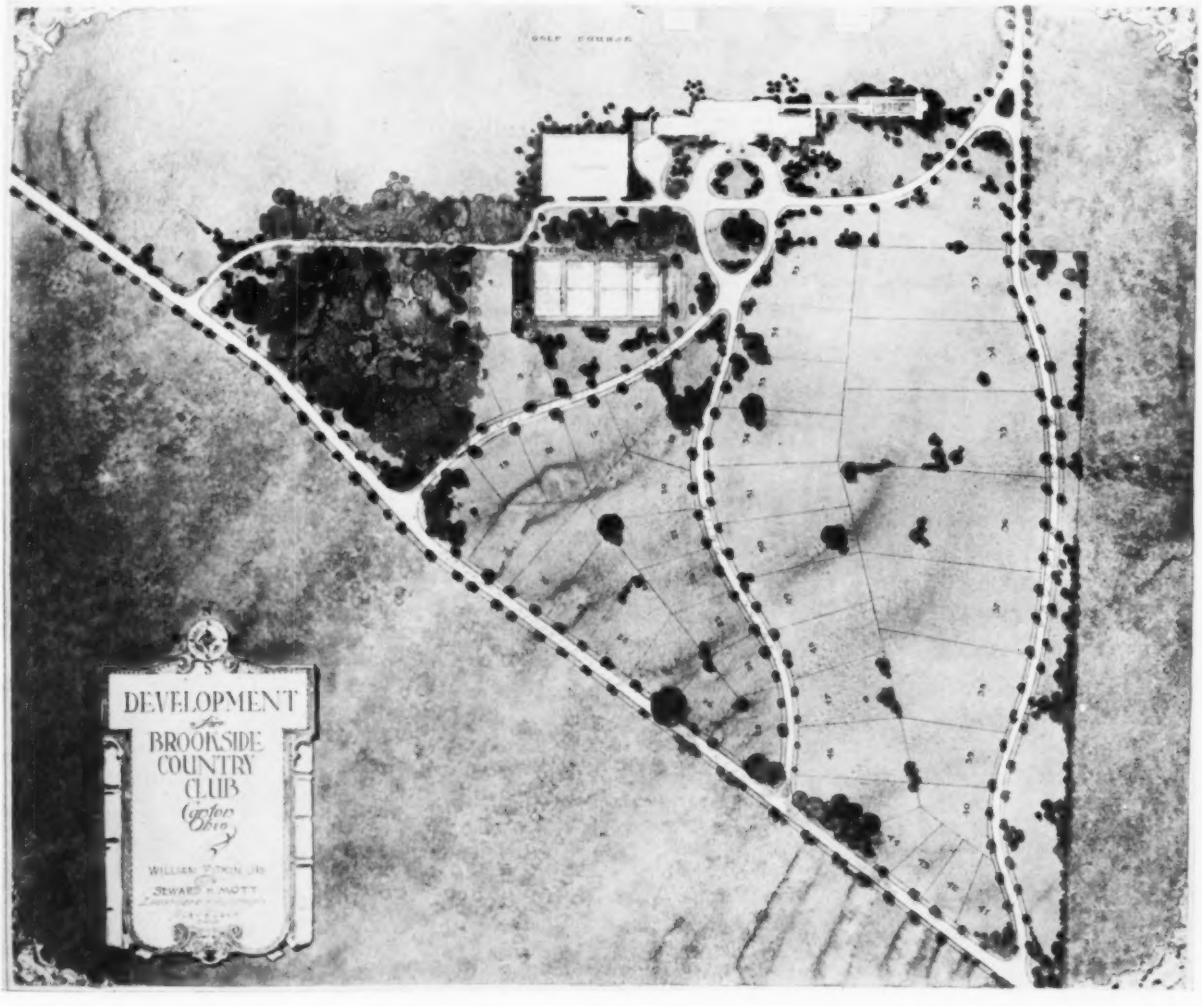
KILDEER COUNTRY CLUB, PRAIRIE VIEW, ILLINOIS
PHILIP A. DANIELSON, ARCHITECT

3. *Lighting and marking:* Parking space should be well lighted by standard lamps or floodlights and plainly indicated with permanent markers.

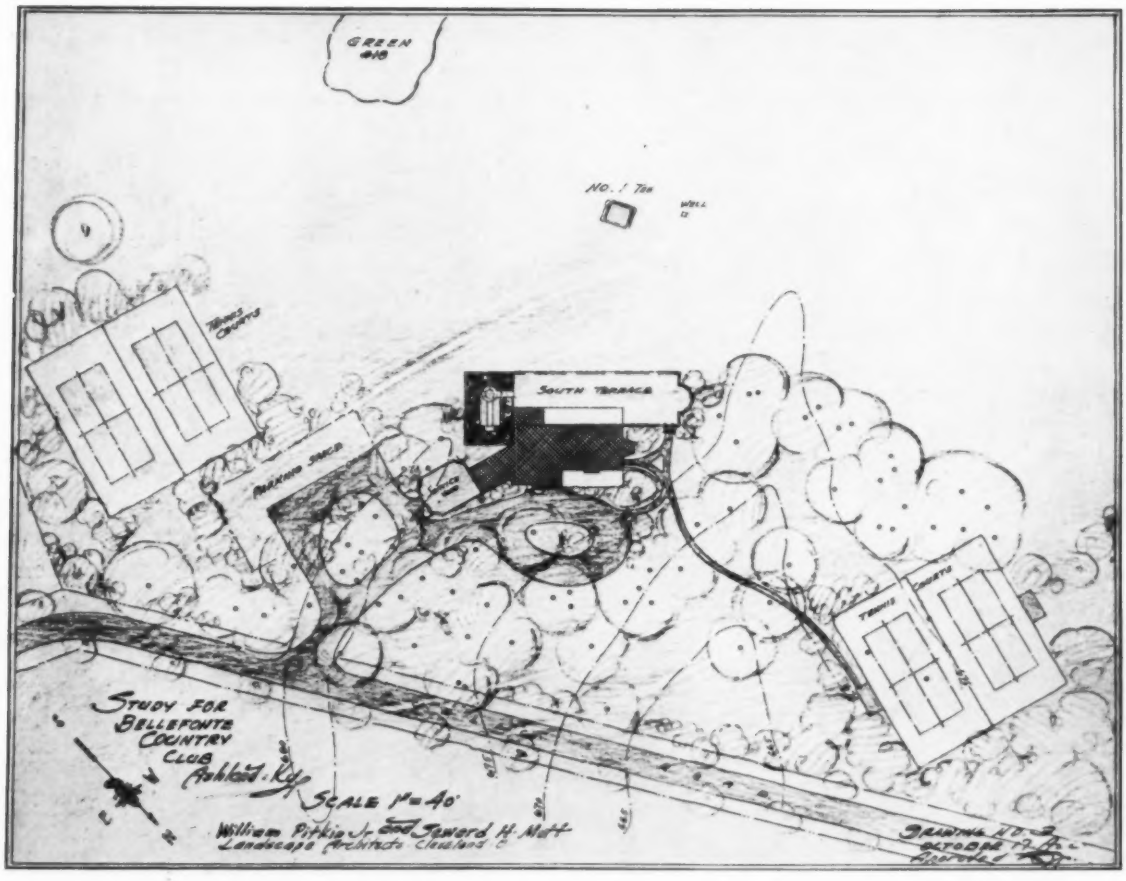
4. *Construction:* Any hard, well-drained surface suitable in good road building is satisfactory. Curbs are practically indispensable, and paved walks next to curb take care of traffic satisfactorily.

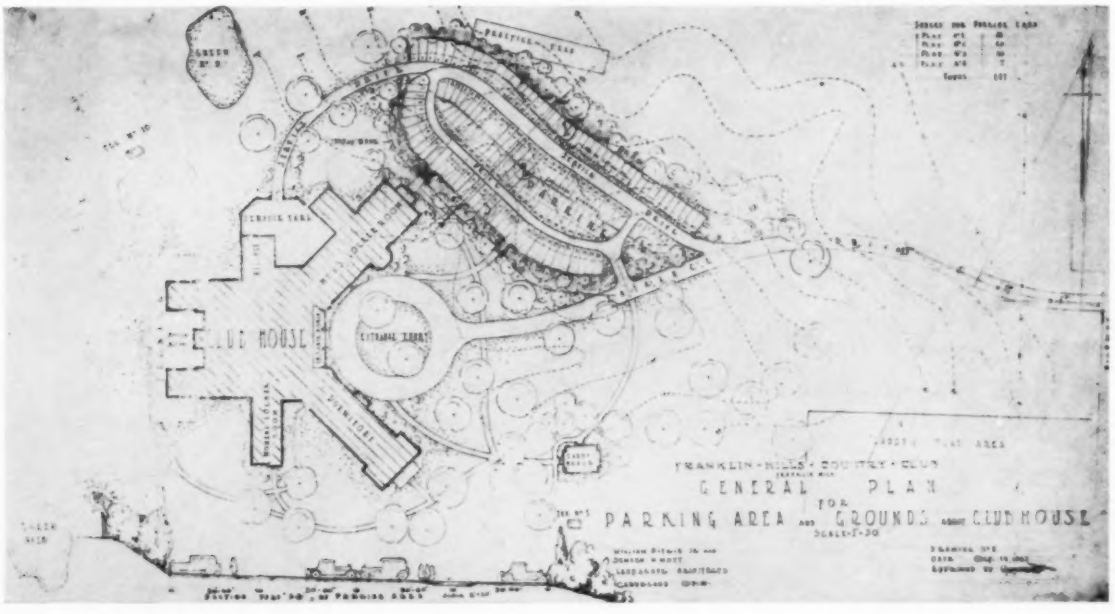
Locker rooms should be convenient to the first and tenth tees and the ninth and eighteenth greens. The arrangement of connecting walks should be direct while avoiding as much as possible the crossing of drives. This phase of the problem also involves the proper location of the professional's and caddy master's quarters so that supplies can be purchased and caddies secured en route to and from the tees and greens. Where outdoor swimming pool and tennis courts are provided, their relationship should also determine the locker room location.

Caddies complicate the planning work. It is essential that they be sufficiently near the starting tees and caddy master's quarters to be quickly available. At the same time, they are usually noisy and disorderly and should be given reasonable opportunity to play while awaiting their turn

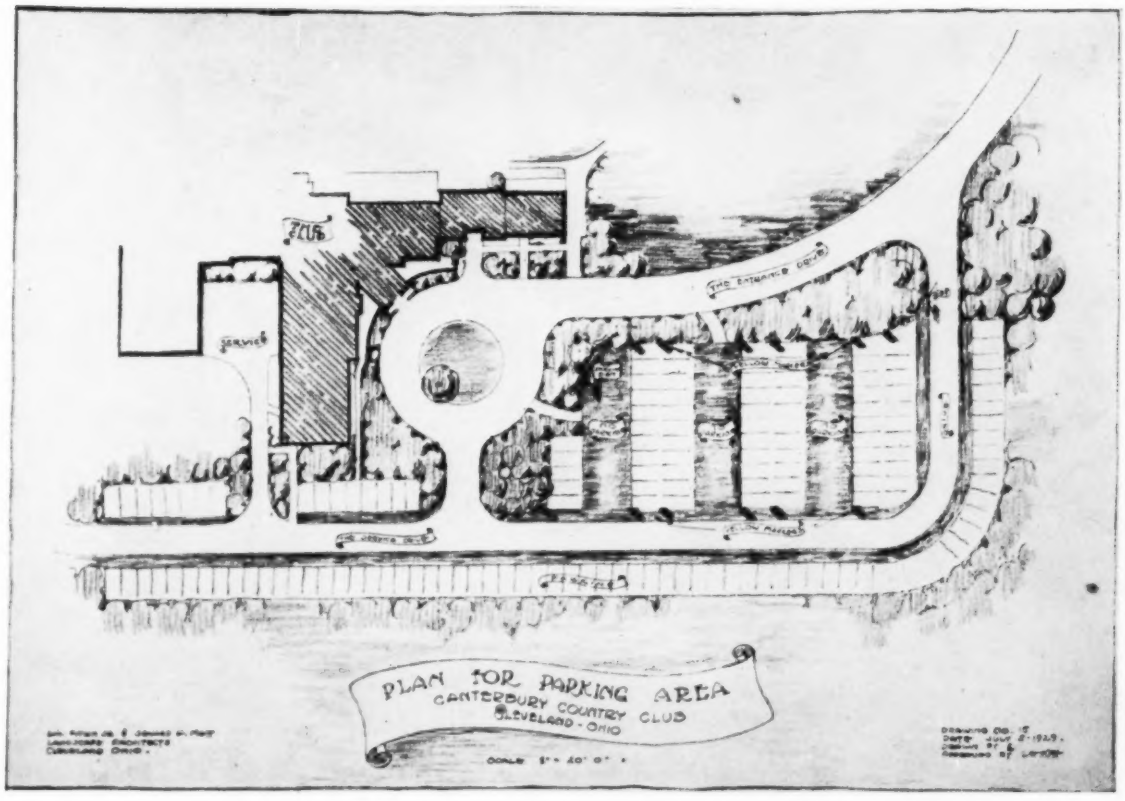


BROOKSIDE COUNTRY CLUB, CANTON, OHIO
WILLIAM PITKIN, JR., AND SEWARD H. MOTT, LANDSCAPE ARCHITECTS





The terrace of the Bellefonte Country Club has an unobstructed view of the first tee and eighteenth green. The Franklin Hills clubhouse was planned to overlook the club's own property instead of facing an undeveloped subdivision of unknown and uncontrollable character.



Parking area requires ample size and accessibility to clubhouse. It should be plainly indicated with permanent markers and well lighted.

for employment. A telephone system to a corral and cabin at a fairly distant secluded spot, with provision for seating a few boys at the caddy master's house, seems to be the most practical solution.

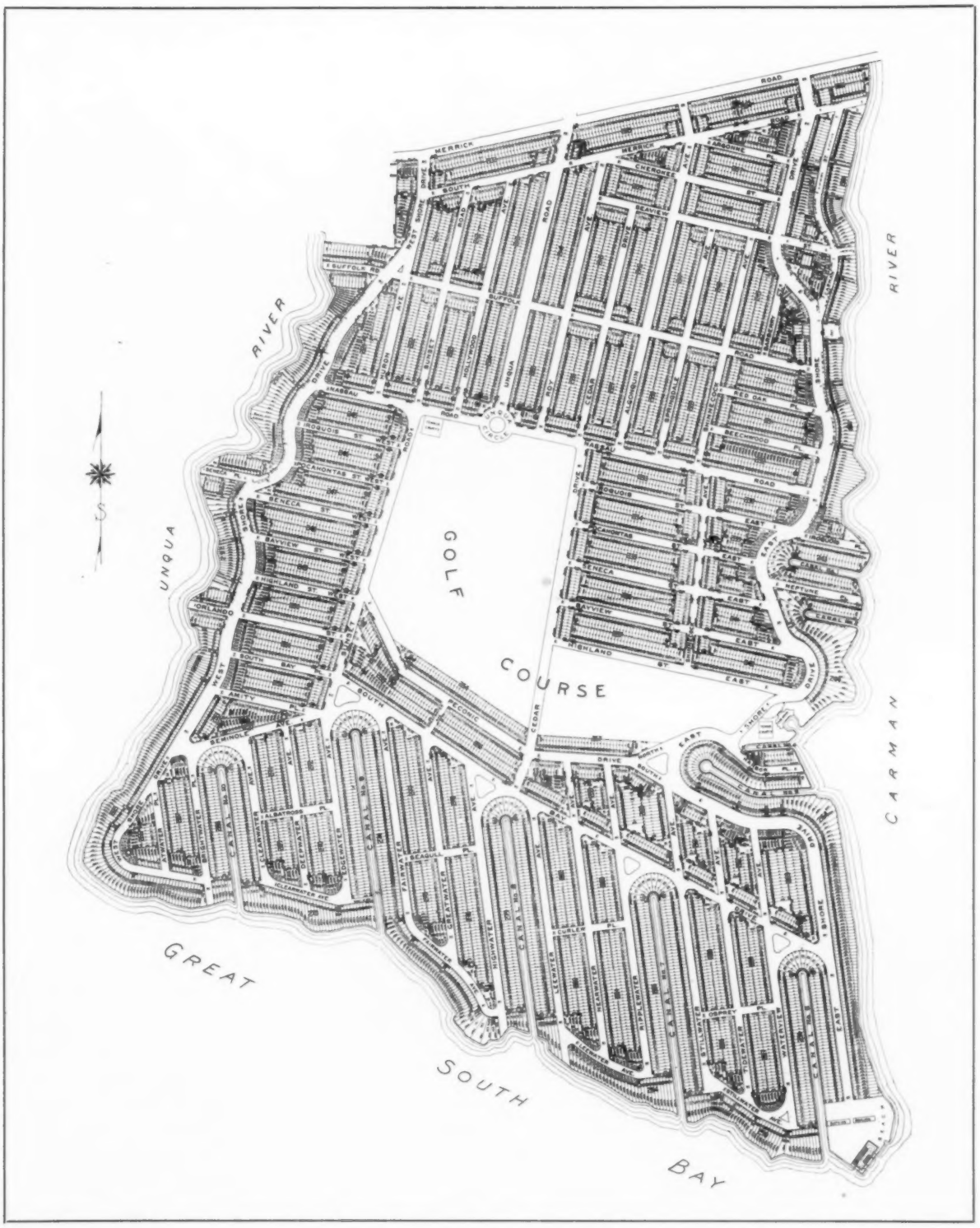
Every club should provide quarters for the storage of golf course equipment and supplies. These may generally be placed at a reasonable distance from the clubhouse.

The general principles here outlined apply to the purely social country club, the club promoted as a selling feature in residential developments and the better grade of pay-as-you-play courses, although, of course, their application will vary in degree in each type.

Realtors are learning the value of a club and golf course to attract buyers, and this field should offer many opportunities to the cooperating architect and landscape architect. The majority of such clubs will undoubtedly be started on a simple basis but will develop logically and be enlarged as the realty project succeeds.

In the pay-as-you-play courses well-kept grounds and buildings have proved a profitable investment. The area required for parking is unusually large, but it may be provided at a greater distance from the clubhouse and less expensively than at a social club.

Planting in all country club projects is limited in extent and variety only by the character of the property, climatic conditions or the question of cost. Considerable screen planting will be required about parking areas and service features and along boundaries. The open terraces, swimming pools, outdoor dance floors and gardens provide the landscape architect with unlimited opportunities to utilize his skill in designing appropriate planting schemes.



Additional water frontage is gained by the use of canals.

NASSAU SHORES COUNTRY CLUB AND SUBDIVISION, LONG ISLAND
OLMSTED BROTHERS, LANDSCAPE ARCHITECTS

Gottscho

NASSAU SHORES COUNTRY CLUB, LONG ISLAND
GROSVENOR ATTERBURY, ARCHITECT
JOHN TOMPKINS, ASSOCIATED

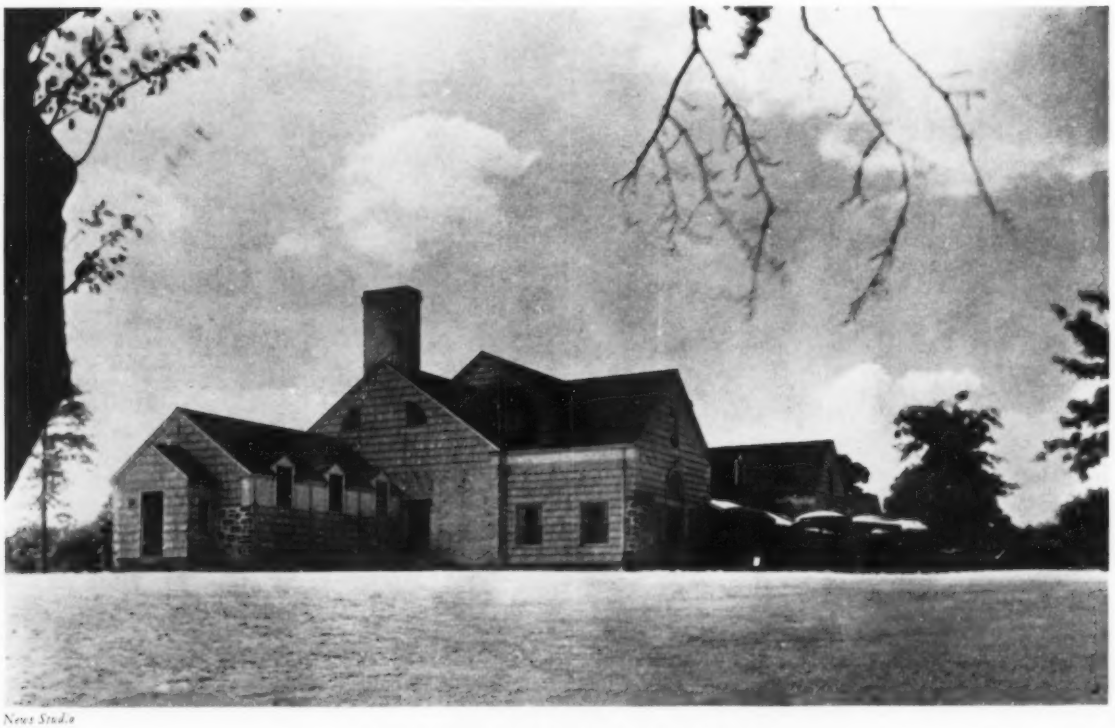
Gottscho

Approximately 7,000 lots have been created in this subdivision of 500 acres as shown on plan on opposite page. The lots are grouped about a 9-hole golf course of 55 acres. Ownership of a building site carries membership in country club and golfing privileges. A bathing pool and pavilion, as well as tennis courts and other recreational facilities, are provided.

Opportunities exist for architects in the development of subdivisions connected with country clubs.

News Studio

ENTRANCE DRIVE TO CLUBHOUSE

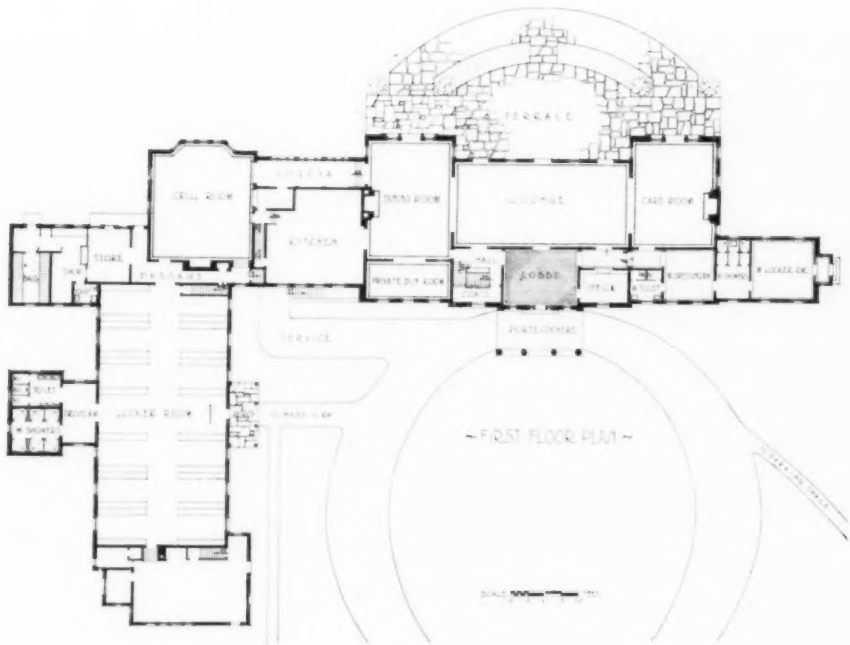


News Studio

NORTH HEMPSTEAD COUNTRY CLUB
PORT WASHINGTON, LONG ISLAND
C. C. WENDEHACK, ARCHITECT

News Studio

PORTE-COCHERE
DIRECT ENTRANCE TO LOCKER ROOM IN WING BEYOND



NORTH HEMPSTEAD COUNTRY CLUB
PORT WASHINGTON, LONG ISLAND
C. C. WENDEHACK, ARCHITECT

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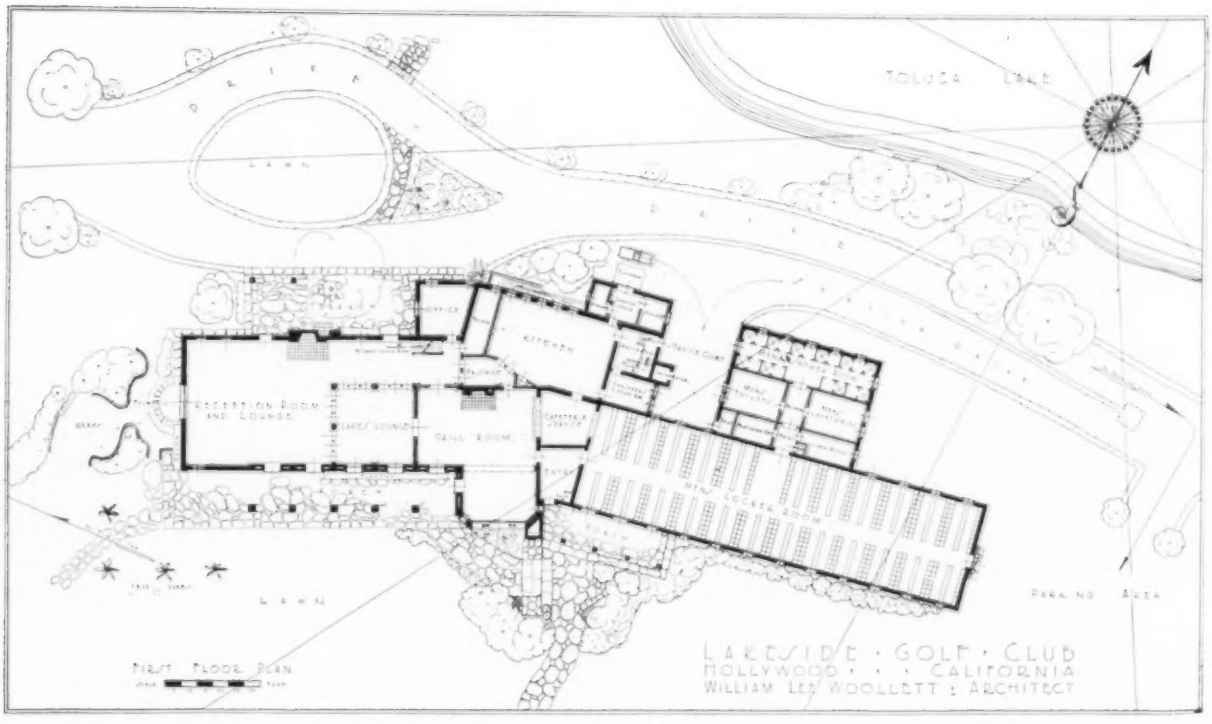
LAKESIDE GOLF AND COUNTRY CLUB, HOLLYWOOD, CALIF.
WILLIAM LEE WOOLLETT, ARCHITECT



ILLINOIS STATE ARCHITECTURE

C. HERRICK HAMMOND
SUPERVISING ARCHITECT

FOOTBRIDGE FOR ILLINOIS STATE FAIR GROUNDS, SPRINGFIELD

A PORTFOLIO OF REGIONAL WORK RECENTLY EXHIBITED IN THE STATE CAPITOL BUILDING AT SPRINGFIELD:

STATE REFORMATORY FOR WOMEN, DWIGHT HEWITT, EMERSON AND GREGG, ARCHITECTS

RECONSTRUCTION OF LINCOLN TOMB, SPRINGFIELD

ILLINOIS SOLDIERS' ORPHANS' HOME, NORMAL

ARMORY FOR THE 124th FIELD ARTILLERY, CHICAGO

NATIONAL GUARD ARMORIES, DECATUR & CAIRO

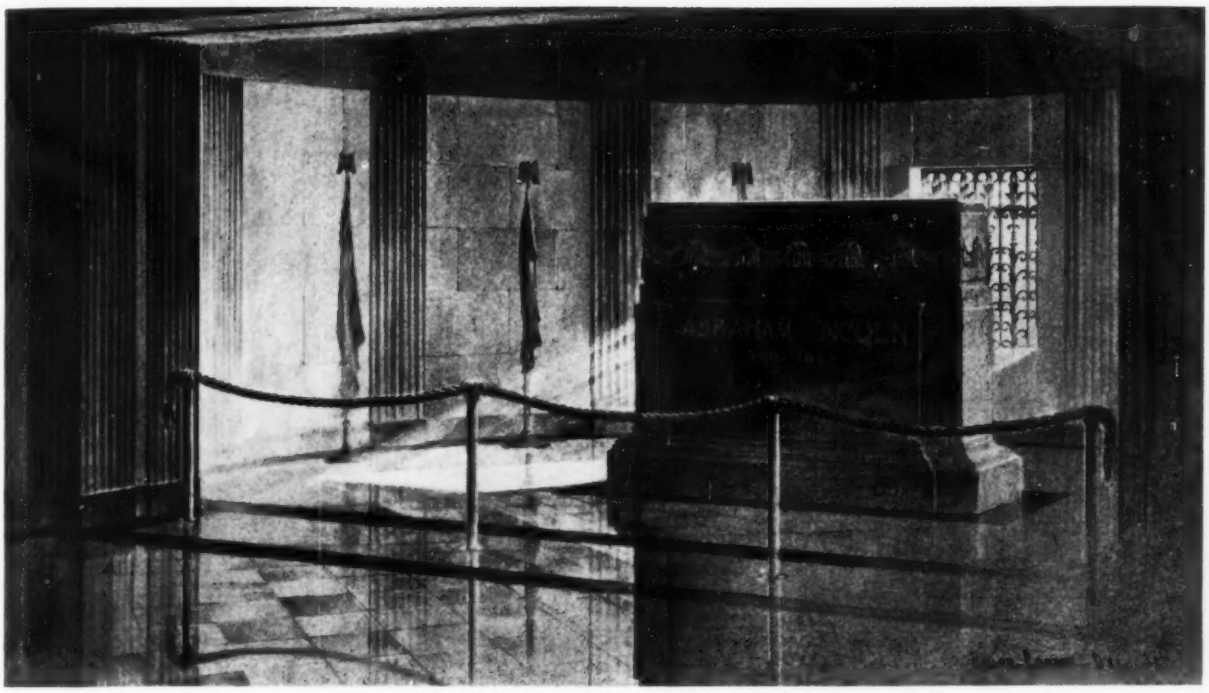
WOMEN'S BUILDING, FAIR GROUNDS, SPRINGFIELD

GARAGE, DIVISION OF HIGHWAYS, SPRINGFIELD

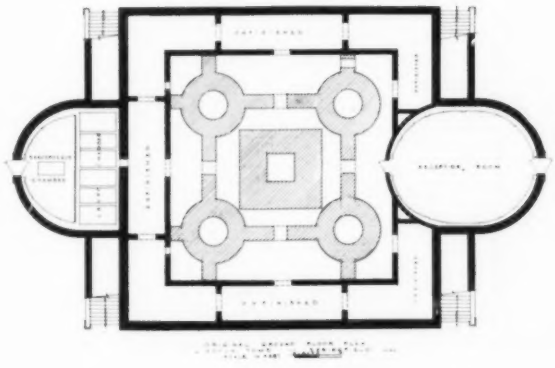
LAUNDRY AND INDUSTRIAL BUILDING

STATE REFORMATORY FOR WOMEN, DWIGHT, ILLINOIS
HEWITT, EMERSON AND GREGG, ARCHITECTS

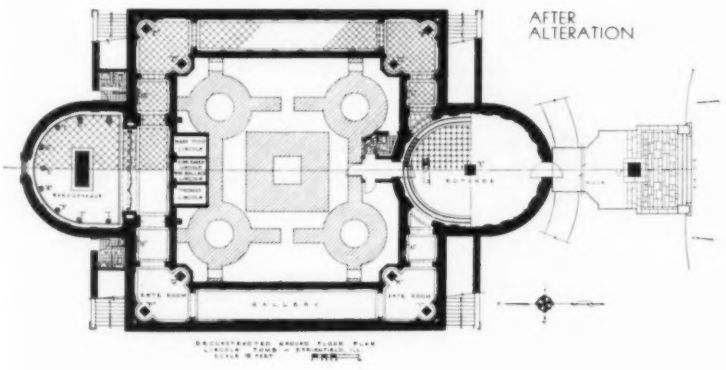
There are 8 cottages, each housing 13 inmates. As the institution develops more cottages are contemplated. The administration building is located close to the main entrance of the institution and provides space for the office help, quarters for the managing officer, nurses, and other officials. Cottages cost 49 cents a cubic foot. Future plans call for additional special buildings, such as schools and work shops.



RECONSTRUCTION OF LINCOLN TOMB, SPRINGFIELD, ILLINOIS
C. HERRICK HAMMOND, SUPERVISING ARCHITECT



BEFORE ALTERATION

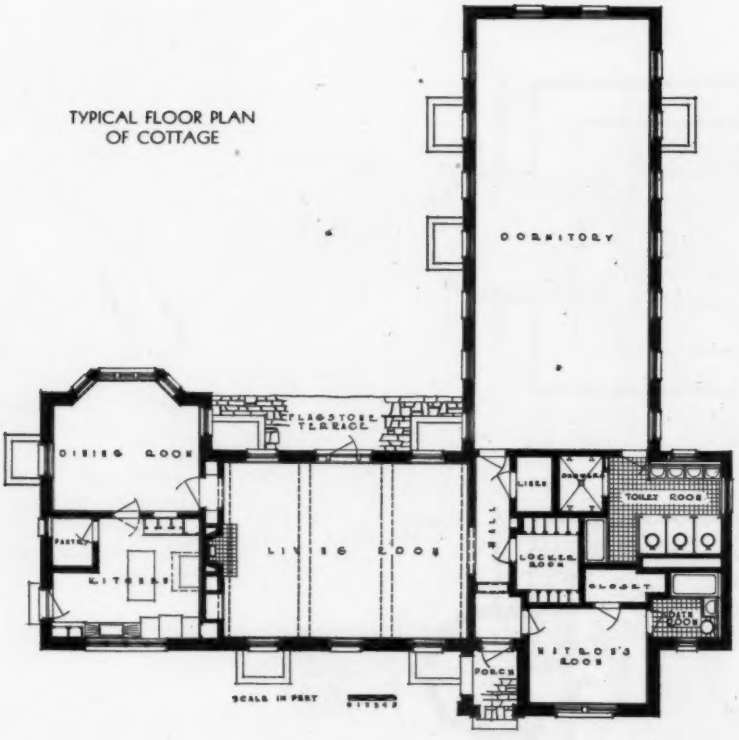


AFTER ALTERATION

The old tomb was in need of repairs and sadly lacking in public circulation space. The sarcophagus chamber has been refinished in marble for the walls and floor. The ceiling is suspended metal lath and plaster gold-leafed. Indirect lighting. The circulation gallery permits display in the corner niches of reproductions of famous Lincoln statues.

ILLINOIS SOLDIERS' ORPHANS' HOME, NORMAL, ILLINOIS
C. HERRICK HAMMOND, SUPERVISING ARCHITECT

TYPICAL FLOOR PLAN
OF COTTAGE



ILLINOIS SOLDIERS' ORPHANS' HOME, NORMAL, ILLINOIS
C. HERRICK HAMMOND, SUPERVISING ARCHITECT

Purpose: There are 8 cottages, all of the same plan and arranged to provide play yards. Each cottage provides eating and sleeping facilities for 15 orphans, with a total of 120 for the 8 cottages.

Site: Sloping wooded tract of land adjacent to public highway.

Type of construction: Brick walls, concrete floors and wood roof construction.

Exterior materials: Common brick painted white, graduated red tile roof.

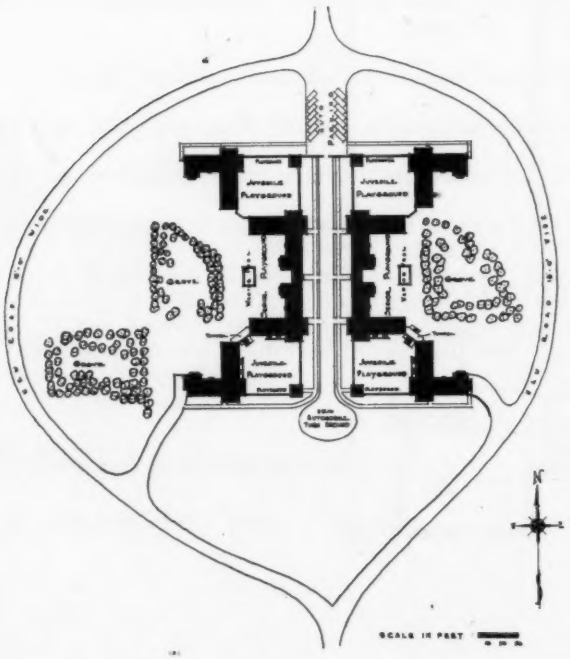
Interior materials: Plastered walls and ceilings. Terrazzo floor throughout except tile floor in kitchen and rubber tile in living room.

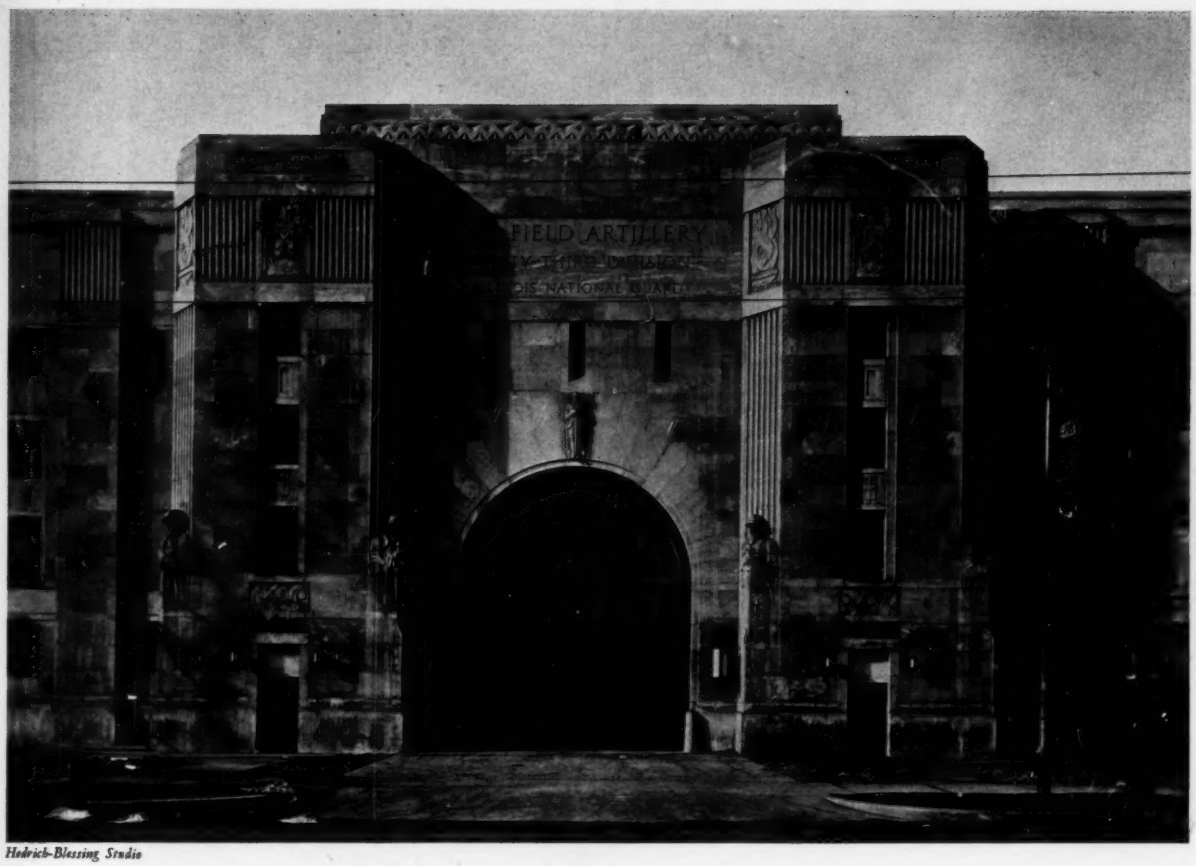
Special features: General group plan which provides for air and sunshine. Play yards. Living room floors with game patterns. Mother Goose stories depicted on fireplaces and other portions of building. Homelike character.

Cost data:
(Cubic contents, 569,788 cubic ft.)

General Work	$132,539.00	or $.23 per cu. ft.
Mechanical Work	57,269.00	or $.10 per cu. ft.
Total	$189,808.00	or $.33 per cu. ft.

ILLINOIS SOLDIERS' ORPHANS' HOME, NORMAL, ILLINOIS
C. HERRICK HAMMOND, SUPERVISING ARCHITECT





Hedrich-Blessing Studio

ARMORY FOR THE 124th FIELD ARTILLERY, CHICAGO
C. HERRICK HAMMOND, SUPERVISING ARCHITECT

Purpose: To house a complete regiment of field artillery of the Illinois National Guard.

Site: Five acres of level ground bounded on one side by an important street and the other three sides by a city park. The park bridal paths run past the building.

Type of construction: Fireproof. Reinforced concrete floors and roofs. Arena roof of precast featherweight cement slabs.

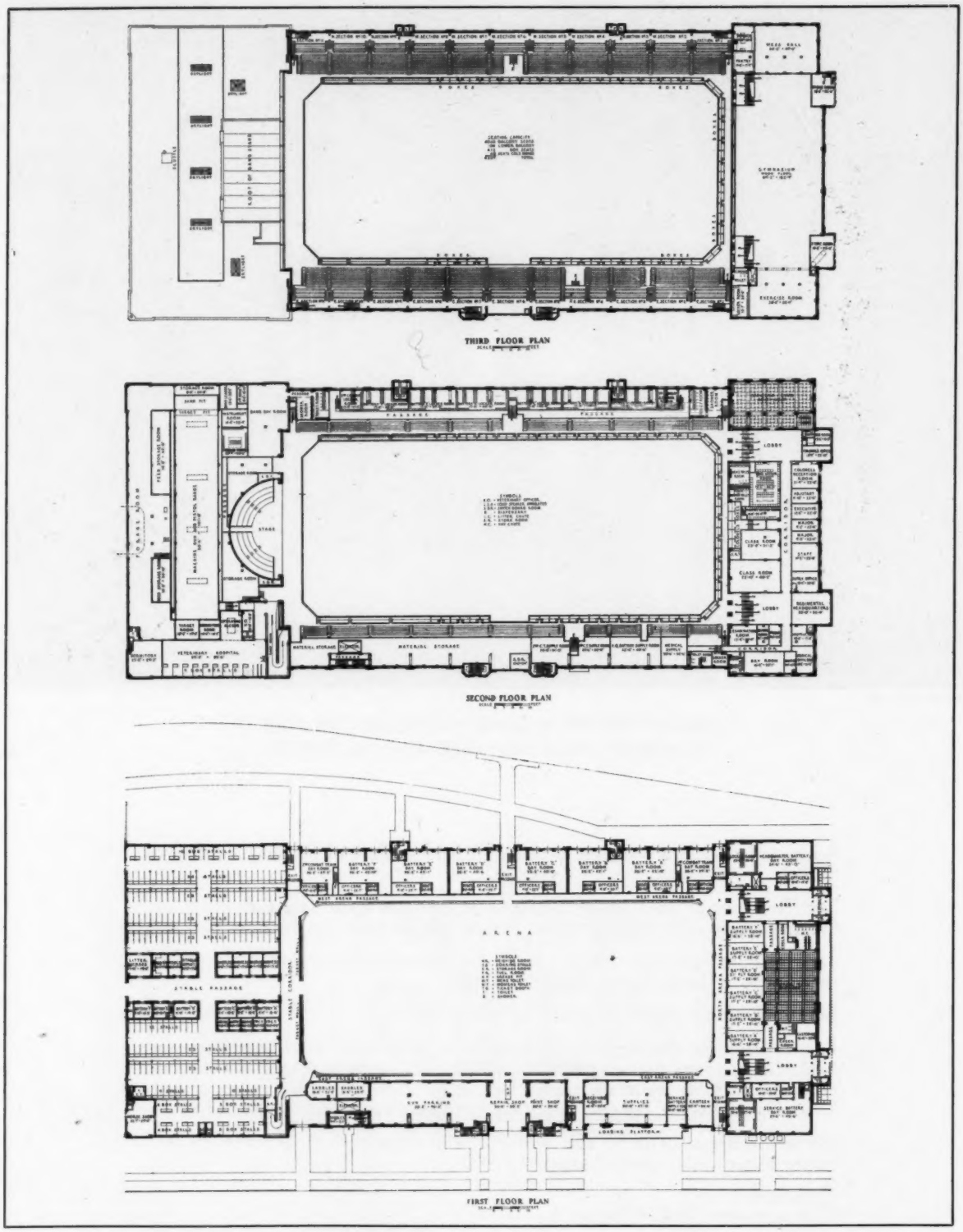
Exterior materials: Shot sawed buff Indiana limestone.

Interior materials: Arena—clay and sand floor, brick walls, steel trusses and skylight. Many rooms have cement floors, face brick walls and exposed concrete ceilings, but some important rooms, such as the club rooms and memorial hall, have plastered walls, terrazzo floors and decorated exposed concrete ceilings.

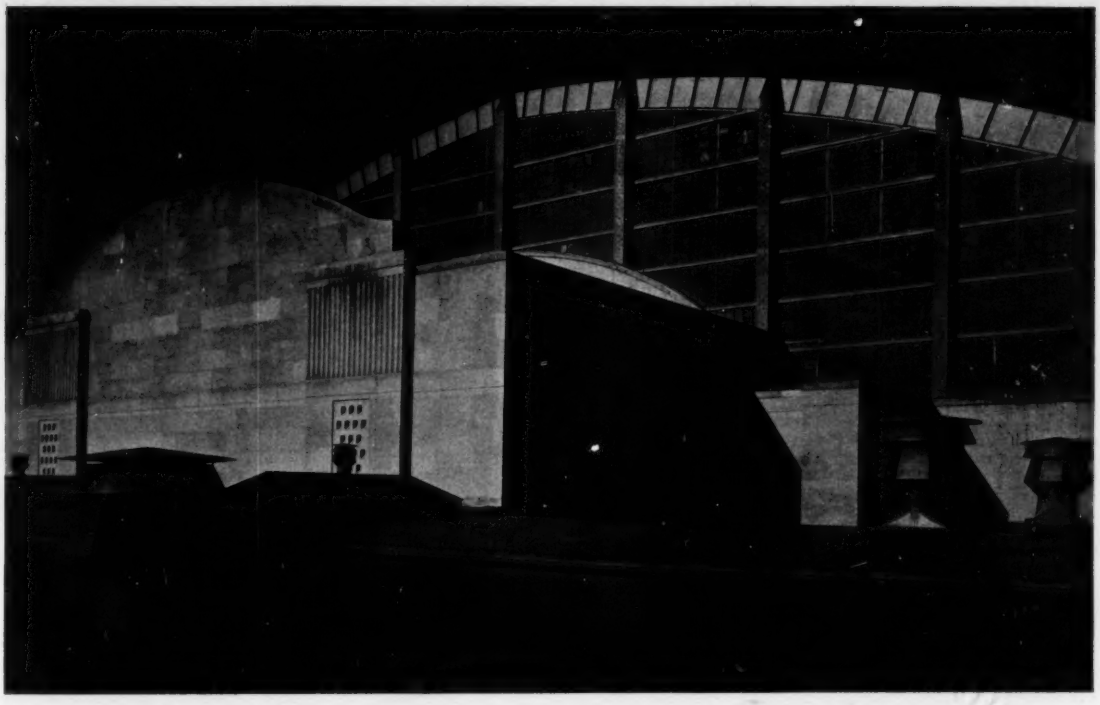
Arena: Clear span of trusses 220′ with 90′ height in center. Area is 324′ by 140′ inside of barricade. Seating capacity 4,700.

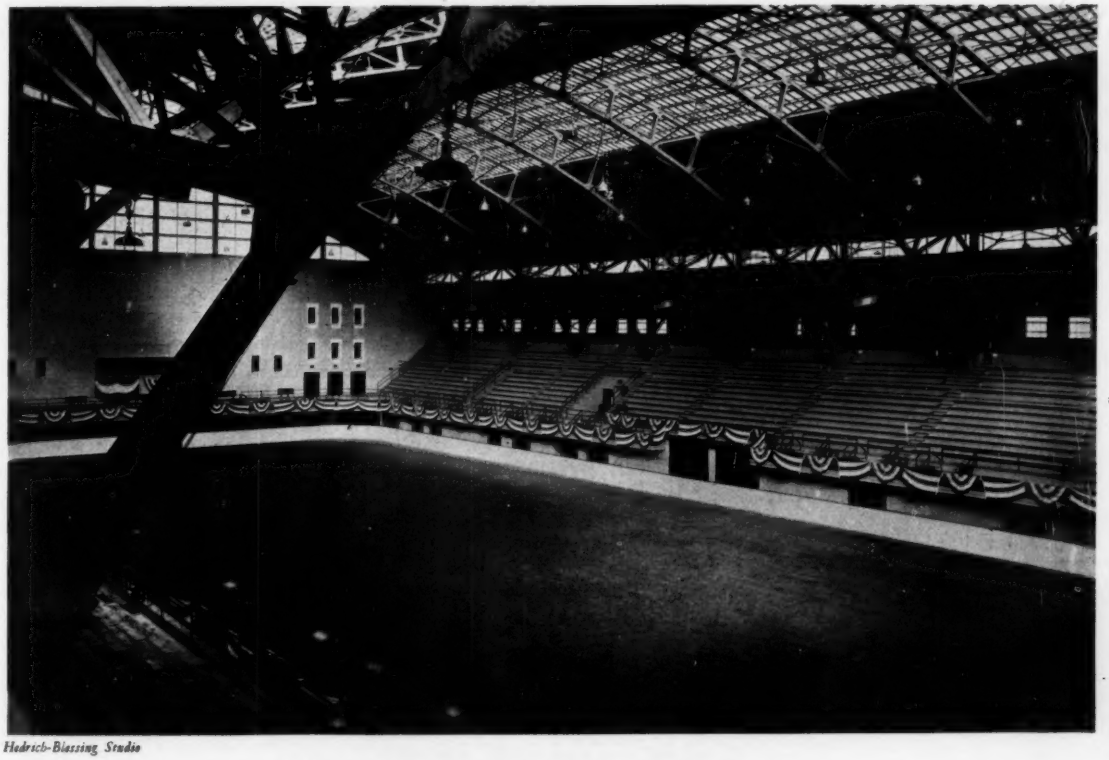
Cost data:
(Cubic contents, 8,434,154 cu. ft.)

Head House	$393,640.55	or $.29 per cu. ft.
Drill Hall	788,073.70	or $.13 per cu. ft.
Stables	273,054.48	or $.25 per cu. ft.
Total	$1,454,768.73	or $.23 per cu. ft.



ARMORY FOR THE 124th FIELD ARTILLERY, CHICAGO
C. HERRICK HAMMOND, SUPERVISING ARCHITECT



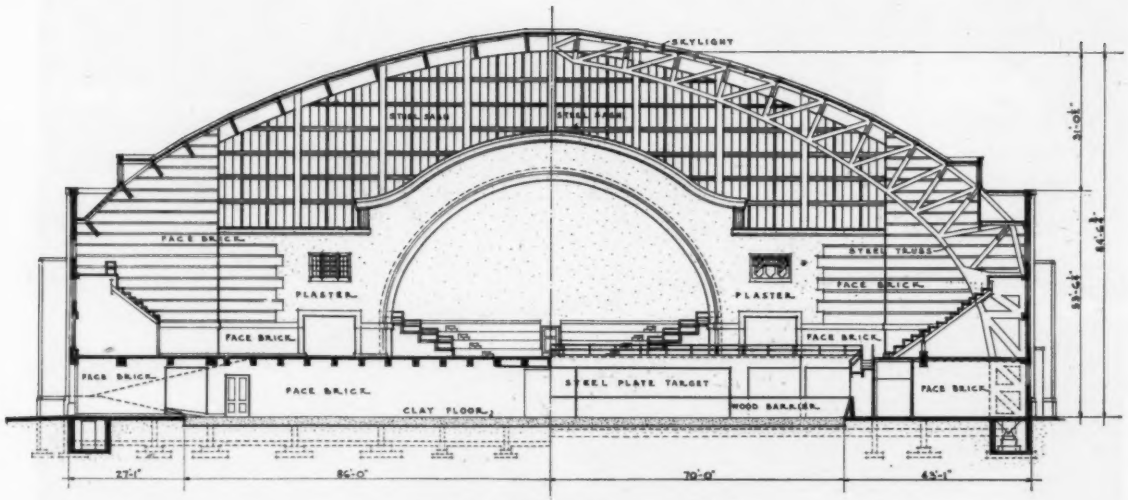


Hedrich-Blessing Studio

ARMORY FOR THE 124th FIELD ARTILLERY, CHICAGO
C. HERRICK HAMMOND, SUPERVISING ARCHITECT

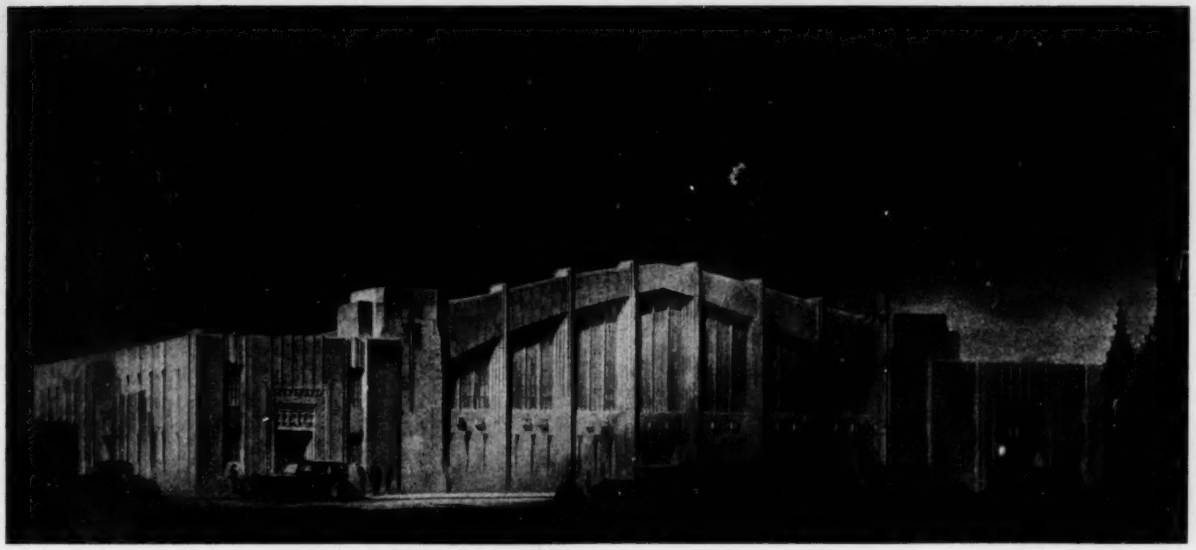
Hedrich-Blessing Studio

GYMNASIUM



CROSS SECTION THROUGH ARENA
LOOKING TOWARD BAND STAND

ARMORY FOR THE 124th FIELD ARTILLERY, CHICAGO
C. HERRICK HAMMOND, ARCHITECT



NATIONAL GUARD ARMORY, DECATUR, ILLINOIS
C. HERRICK HAMMOND, SUPERVISING ARCHITECT

Purpose: To house two companies and a band of the Illinois National Guard. The drill hall will also serve for public functions and basketball games, and the kitchen can be used for public dinners. A banquet hall and suitable rest room facilities have been provided to meet public requirements.

Site: Practically level.

Type of construction: Fireproof. Load bearing exterior walls. Plastered walls and ceilings. Drill hall roof is poured gypsum on insulation board.

Exterior materials: Buff faced brick of three closely shaded colors. "Old Gothic" Indiana limestone trim and ornamental features. Main entrance doors are natural finish oak with wrought iron hardware and studs.

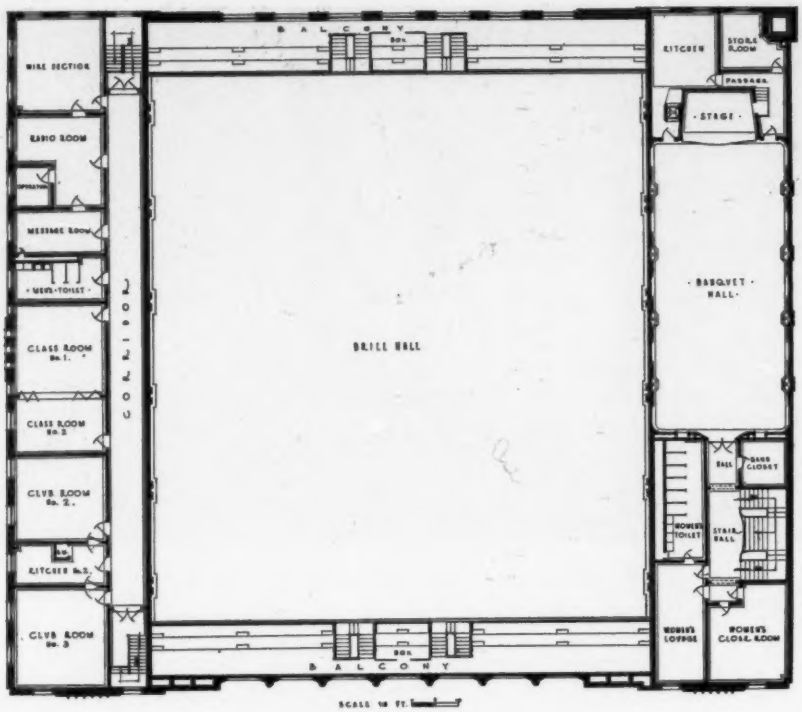
Interior materials: Plastered walls and ceilings throughout except in drill hall which has exposed insulation board for acoustics. Salt glazed brick wainscoating about 8 feet high is provided in the drill hall.

Floors: Cement monolithic finish throughout except in drill hall which has a maple floor. The banquet hall has a parquetry floor.

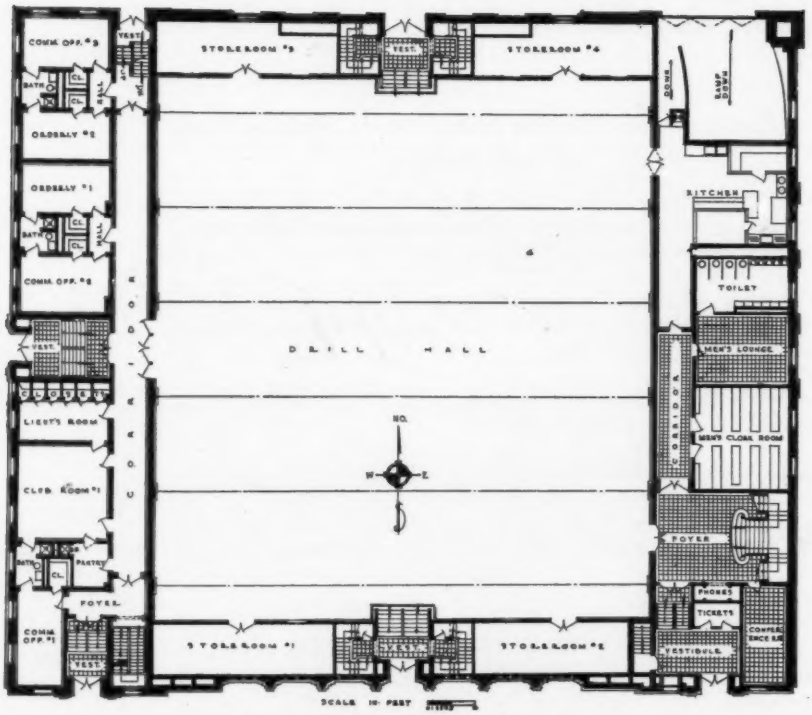
Special features: The plan of the building is such that rentable sections and the sections allotted to the officers and men are separated. The banquet hall has special wall lighting and combination daylight sash, nickel-plated lighting fixtures and ventilating space. Interior rifle range in the basement is used for tournaments.

Cost data:
(Cubic contents, 1,124,000 cu. ft.)

General Work	$164,268.00	or $.14½	per cu. ft.
Mechanical Work	44,670.00	or $.04	per cu. ft.
Total	$208,938.00	or $.18½	per cu. ft.



SECOND FLOOR PLAN



GROUND FLOOR PLAN

NATIONAL GUARD ARMORY, DECATUR, ILLINOIS
C. HERRICK HAMMOND, SUPERVISING ARCHITECT

NATIONAL GUARD ARMORY, CAIRO, ILLINOIS
C. HERRICK HAMMOND, SUPERVISING ARCHITECT

Purpose: To house one company of the Illinois National Guard. Suitable lockers and toilet facilities have been provided for peace time drilling and training, and adequate kitchen facilities added for taking care of the troops during mobilization. The drill hall will serve not only for military training, but also as an auditorium for civic functions, thus providing a source of revenue. A large banquet hall on the second floor is used by both the National Guard and the public. Due to poor soil bearing conditions and underground water in this vicinity, it was necessary to plan all features above ground.

Site: Level ground; frontage on main thoroughfare of city, three blocks from center of business district.

Type of construction: Foundations are of the floating type. Brick bearing walls. Concrete floors and roofs with exposed beams and joists below. Auditorium roof, poured gypsum on insulation board.

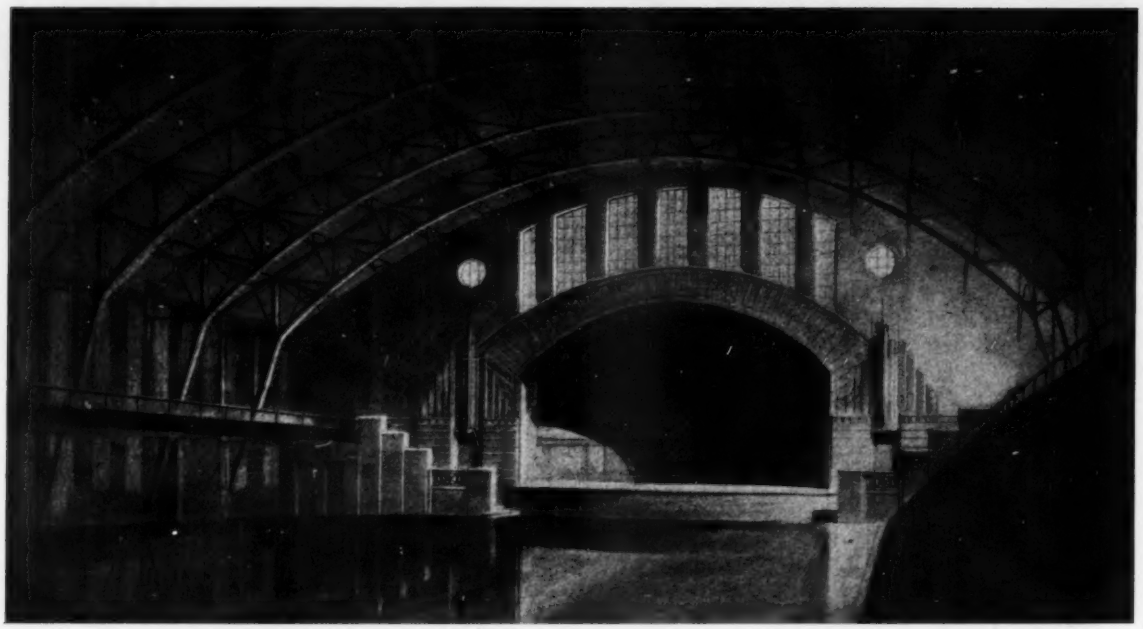
Exterior materials: Face brick ranging from dark red to dark blue, overburnt and slightly warped. Buff Indiana limestone trim and ornament. Projected steel sash. Wood doors painted blue-green with black wrought iron hardware.

Interior materials: In order to keep down not only the first cost but also maintenance, plastered surfaces were eliminated and all interior door frames were made of steel. In all rooms except storerooms and boiler room a salt-glazed brick wainscoting 6' high is used with a smooth-faced face brick above. The auditorium acoustics are cared for by the exposed insulation board at the ceiling and a rough-faced face brick chosen for the walls. The ceilings throughout are stained concrete beams and joists.

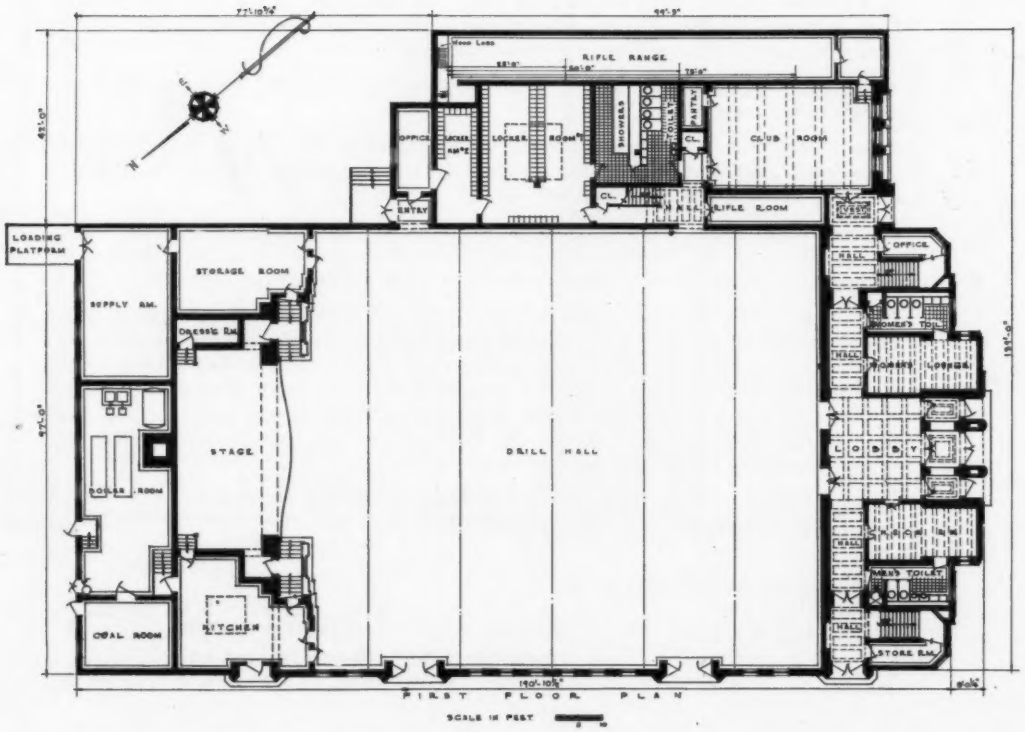
Special features: Stage proscenium arch built of concrete veneered with brick. Cantilever balcony.

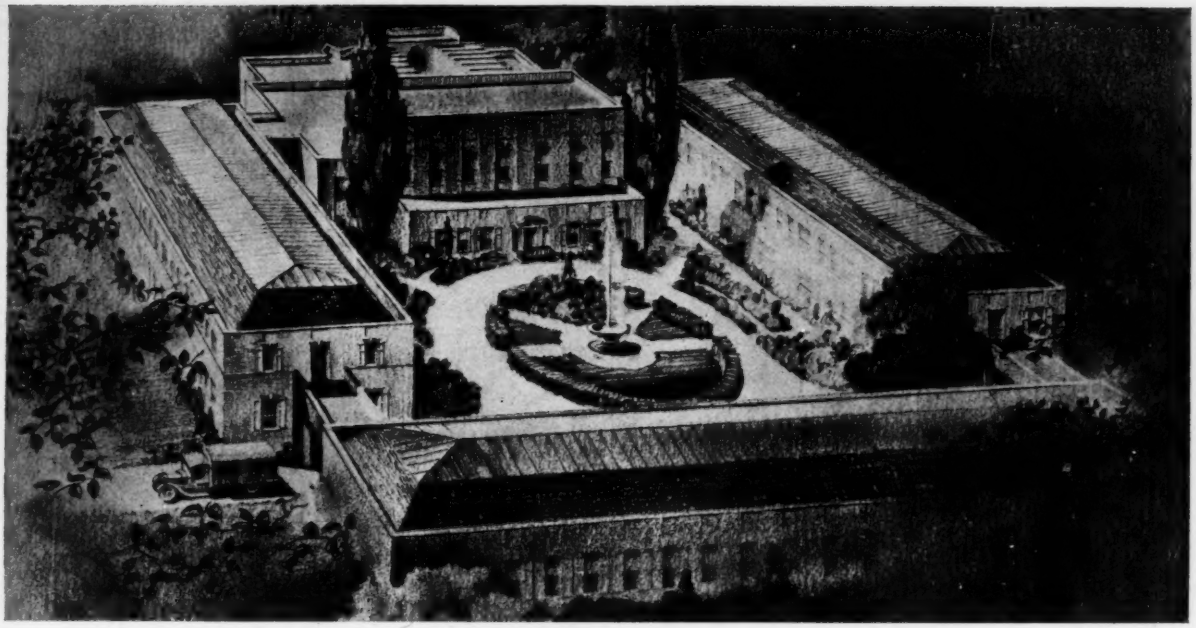
Cost data:
(Cubic contents, 763,830 cu. ft.)

General Work	$122,356.00	or $.16 per cu. ft.
Mechanical Work	30,821.00	or $.04 per cu. ft.
Total	$153,177.00	or $.20 per cu. ft.



DRILL HALL
NATIONAL GUARD ARMORY, CAIRO, ILLINOIS
C. HERRICK HAMMOND, SUPERVISING ARCHITECT





WOMEN'S BUILDING
STATE FAIR GROUNDS, SPRINGFIELD, ILLINOIS
C. HERRICK HAMMOND, SUPERVISING ARCHITECT

Purpose: To provide exhibition space for the state fair and house a domestic science school. One hundred twenty-five girls are selected from state counties and live in the building for the duration of the course. The building is used only two weeks during mid-summer and is planned so that, when not in use, it can be tightly locked and secured against vandalism. Plastered surfaces and steam radiators are reduced to a minimum so the freezing weather can have little or no effect.

Site: Practically level, bounded by two streets.

Type of construction: Fireproof. Wall bearing concrete floors. Roofs over side and rear wings are concrete poured over insulation board.

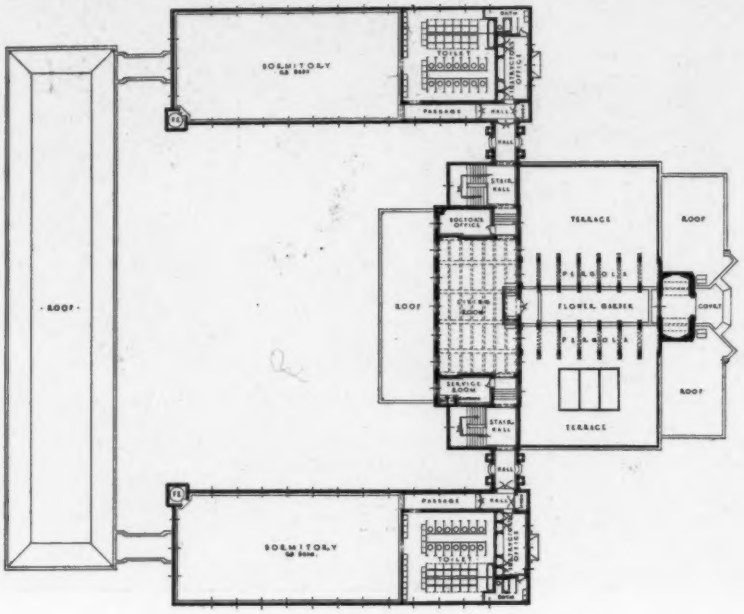
Exterior materials: Face brick and buff Indiana limestone. Bricks range from red to dark blue, overburned and slightly warped. Joints are raked with blunt wood sticks. Water table and base are concrete with wood veneer form linings where exposed above grade. Exterior wood work painted white.

Interior materials: Smooth brick walls, painted throughout except in auditorium, dining room, officers' serving room and entrance hall which are plastered. Exposed concrete ceilings, painted (stained in central unit of building). Cement floors, monolithic finish throughout except in auditorium, dining room, sewing room, offices, entrance hall of central unit where terrazzo is used.

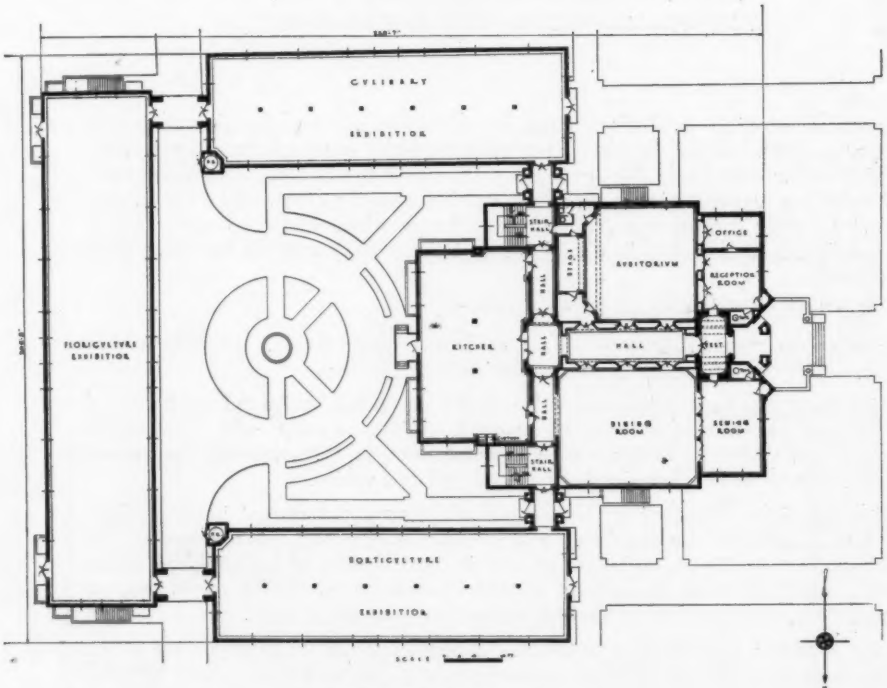
Special features: Combination auditorium, gymnasium and cooking class room. (Demonstrations made on the stage with movable range and sink.) Roof terraces and flower garden. Sewing room serves as overflow space for dining room when large dinners are served. Large public toilets in basement supervised by the domestic science school.

Cost data:
(Cubic contents, 742,300 cu. ft.)

General Work	$144,883.00	or $.19 per cu. ft.
Mechanical Work	50,189.00	or $.07 per cu. ft.
Total	$195,072.00	or $.26 per cu. ft.

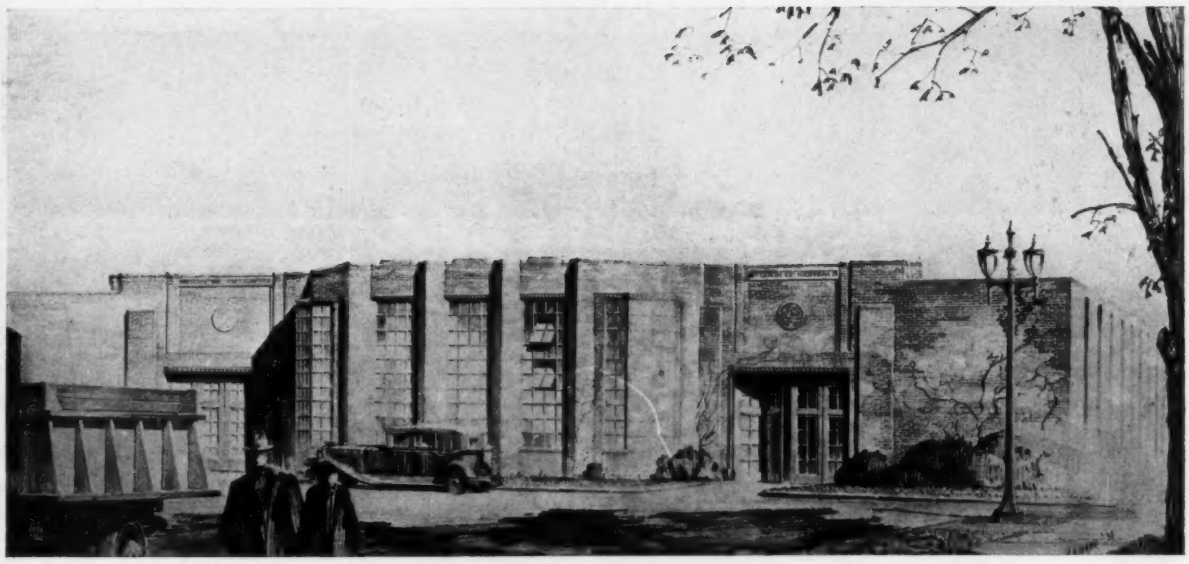


SECOND FLOOR PLAN

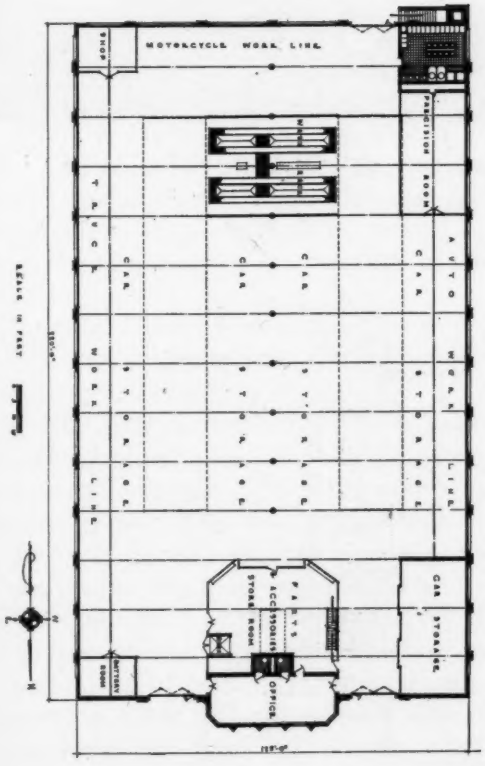


GROUND FLOOR PLAN

WOMEN'S BUILDING
STATE FAIR GROUNDS, SPRINGFIELD, ILLINOIS
C. HERRICK HAMMOND, SUPERVISING ARCHITECT



GARAGE BUILDING FOR DIVISION OF HIGHWAYS
SPRINGFIELD, ILLINOIS
C. HERRICK HAMMOND, SUPERVISING ARCHITECT



Purpose: To provide storage space and repairing facilities for the trucks and motorcycles of the Division of Highways. Space also required for the storage and repairing of tires, spare parts and an office for clerical help.

Site: Level ground on the outskirts of Springfield adjacent to railroad.

Type of construction: Brick walls. Steel trusses. Slow burning roof and monitor. Cement floor.

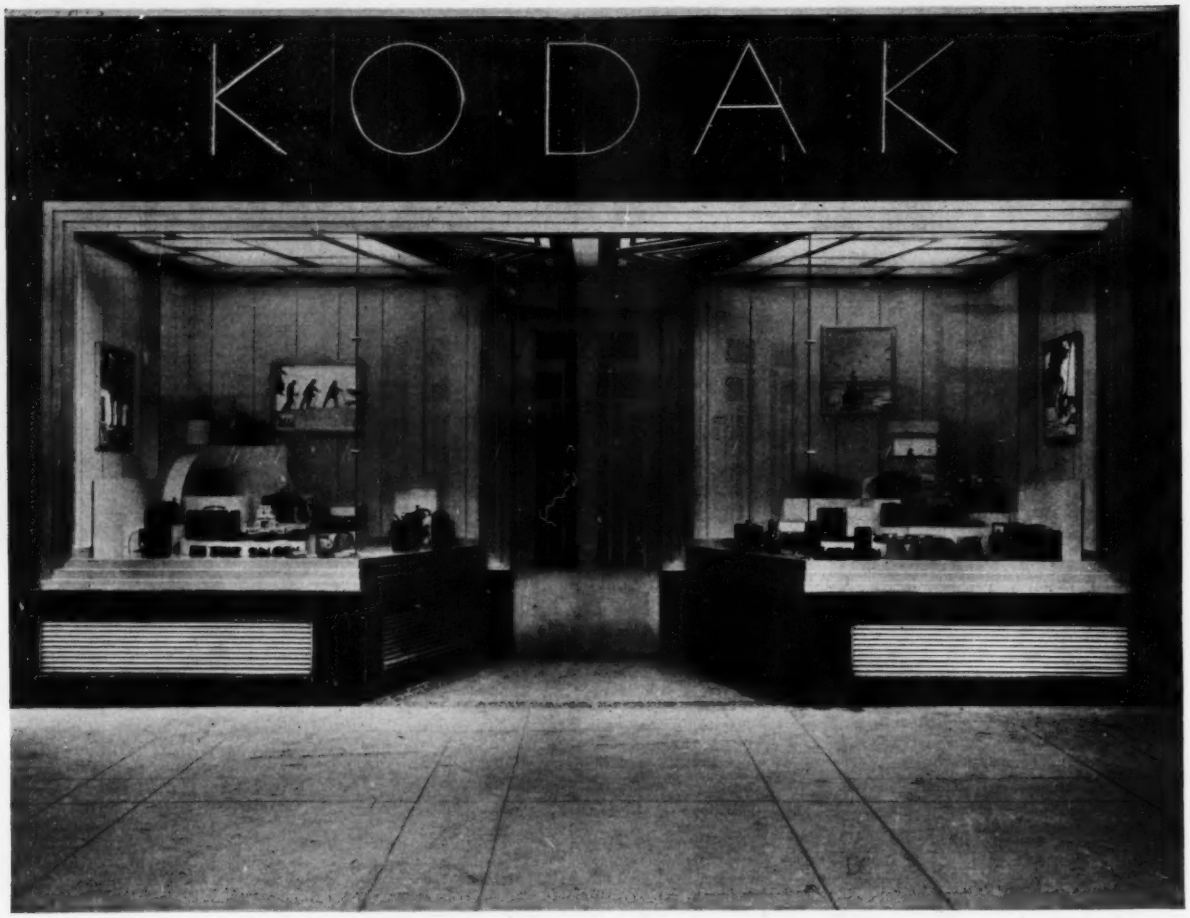
Exterior materials: Face brick. Stone trim. Steel sash.

Special features: Corner windows to allow a clear view to the clerk who will operate entrance doors.

Cost data:
(Cubic contents, 736,567 cu. ft.)

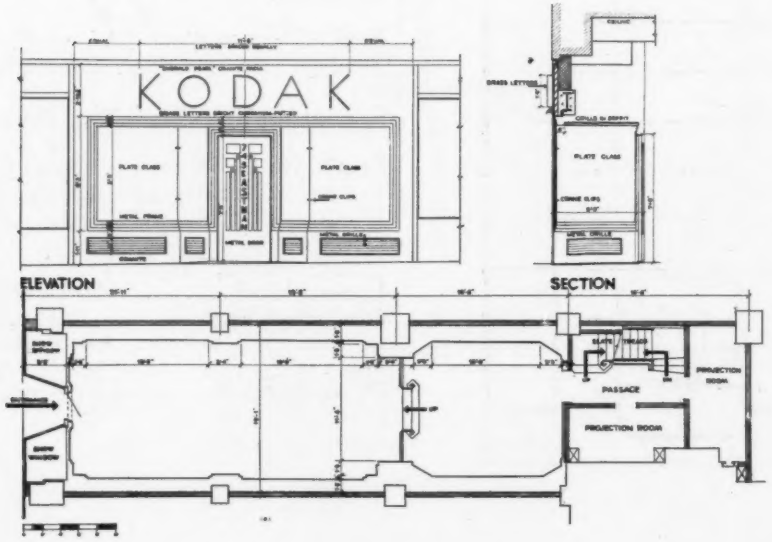
General Work.....	$60,432.00	or $.08 per cu. ft.
Mechanical Work.....	5,525.00	or $.01 per cu. ft.
Total.....	$65,957.00	or $.09 per cu. ft.

(These figures do not include the concrete floor.)



Gillies

EASTMAN KODAK SHOP, NEW YORK CITY
WALTER DORWIN TEAGUE, DESIGNER
R. B. SHERBURNE, ASSOCIATE



EASTMAN KODAK SHOP

745 FIFTH AVENUE, NEW YORK CITY

WALTER DORWIN TEAGUE, DESIGNER
R. B. SHERBURNE, ASSOCIATE

The Eastman designer, in charge of the styling of Kodaks, has had here the opportunity of designing a smart shop background for Kodaks on upper Fifth Avenue.

Exterior: Against the black granite facia is the name KODAK in ribbon lettering, three inches deep, cast in brass and brightly chrome-plated. The shop windows are low. The frame and glass setting are benedict metal. The display bases have been raised to a height convenient for the eye of the passerby. The woodwork is flush paneled with vertical chromium strips inlaid, lacquered white, and sprayed with a mist of silver, which gives a light neutral gray, an effective background for cameras and photographic enlargements. Movable geometric blocks, on which the merchandise is exhibited, permit rearrangement of the window displays. The name KODAK and other window signs are done in blocks as well.

The entrance is a one-piece door of benedict metal with pierced glass panel design. On its surface is applied raised vertical lettering, reading "745" and "EASTMAN".

Interior: Treated in silver, silver gray and black to form a neutral setting for the colorful merchandise.

The floor is composed of three-toned gray and black terrazzo in blocks of irregular pattern, separated by wide strips of benedict metal. The walls are wainscoted in English harewood of a very light silvery gray tone, built up with stiles and rails in diamond pattern paneling. A few severely simple pilasters are finished with capitals composed of horizontal fins of unpolished chrome plate. The fluted cornice and rectangular moldings have been applied in the same metal. Black *formica* has been employed as a base board.

The wall cases, like the show windows, have a background of silver mist. Above the wall cases are large photo-murals set in chrome frames.

Lighting: Indirect throughout. The shop window ceilings have glass members of irregular pattern with muntin bars of chrome plate. Inside, the fixtures are executed in polished chrome, those in the ceiling being simple rectangular boxes with sides and bottom of opal glass. The prisms for the wall lights were ground in the lens works of the Eastman Company. These prisms are placed vertically at intervals along the wall and framed in chrome-plated fixtures of simple design.

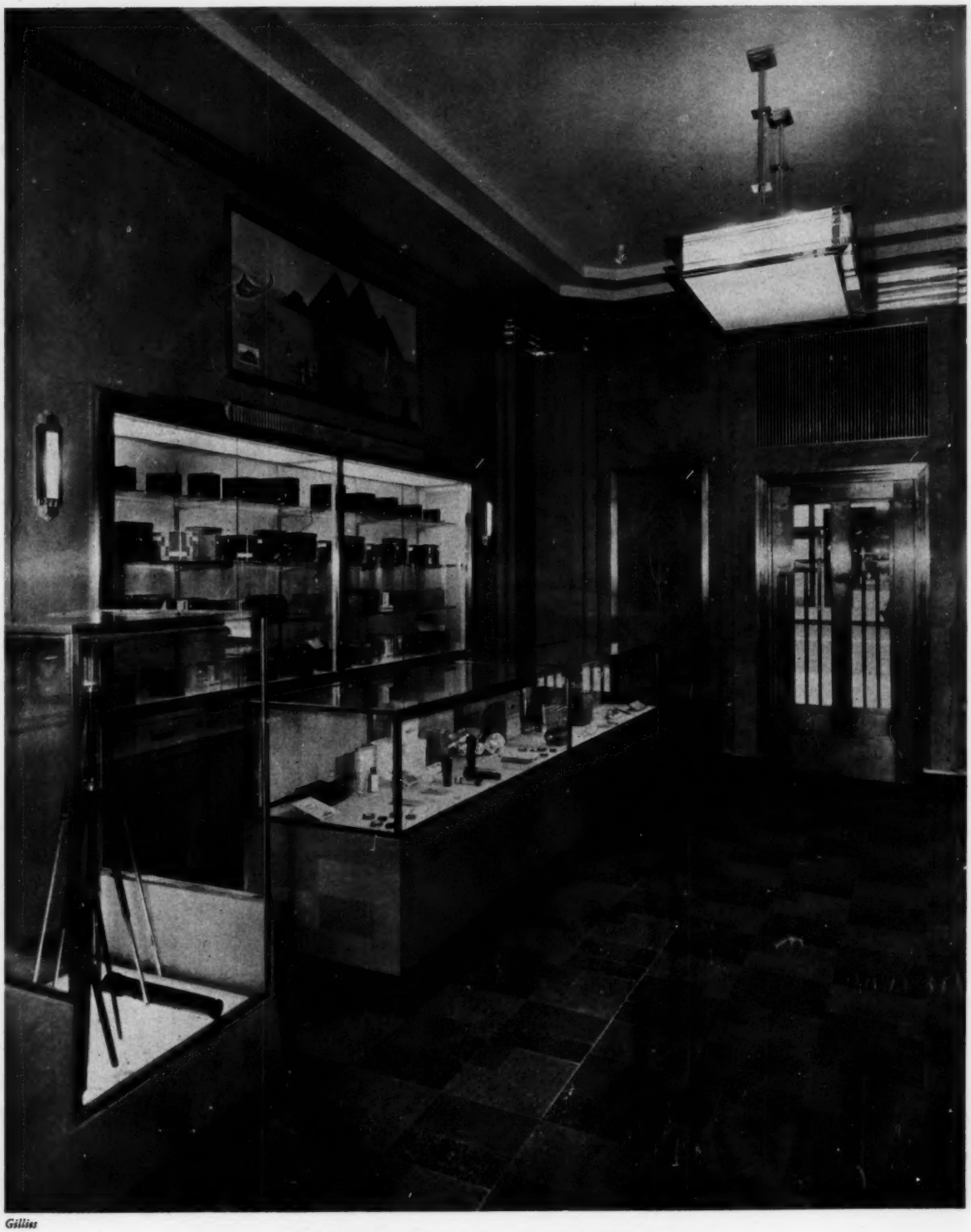
Cine-Kodak department: This is an octagonal room placed three steps below the front portion of the store. The furniture here is silver, and a rose colored rug introduces the only color to be seen anywhere in the background of the shop. Color is confined to the merchandise. The steps are black marble.

Projection rooms: Under the mezzanine, at the rear of the store, are two small rooms treated in rose and silver, with silver furniture, and specially designed lighting fixtures. Here amateur movie makers can view the running of their films in privacy and comfort.

Heating and ventilation: Air is taken through the decorative metal grilles under the shop windows, drawn to the basement where it is filtered, heated and returned after conditioning to suitably placed outlets. Thus the entire store, including even the small projection rooms, is supplied with fresh clean air at the desired temperature.

Gillies

EASTMAN KODAK SHOP, NEW YORK CITY
WALTER DORWIN TEAGUE, DESIGNER
R. B. SHERBURNE, ASSOCIATE



Gillies

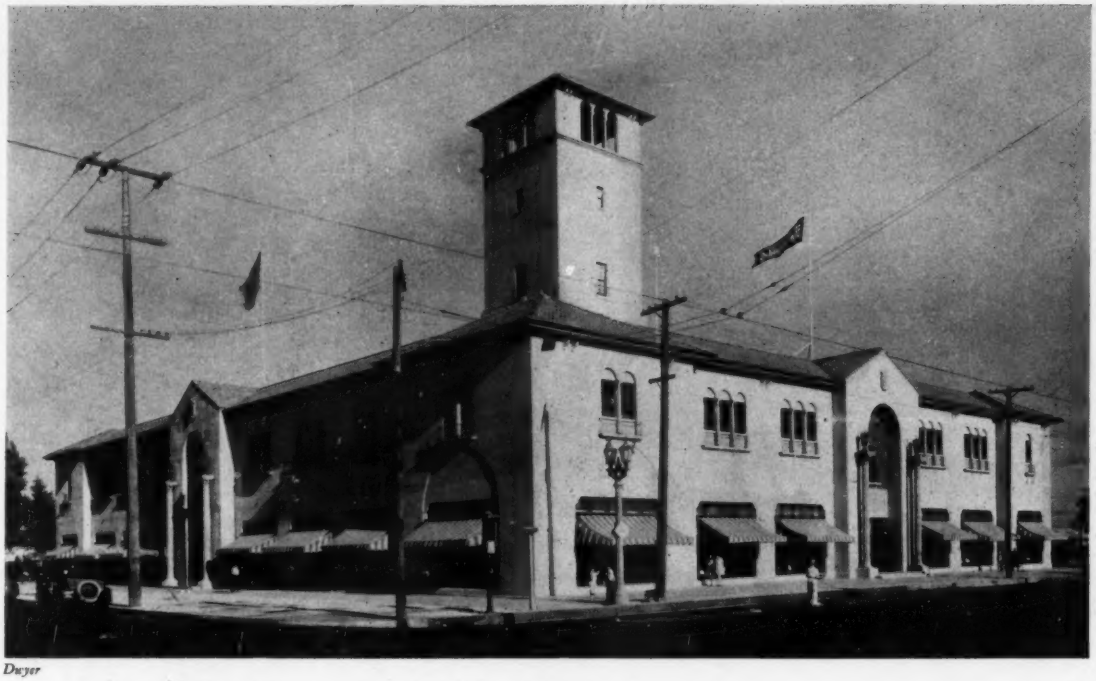
EASTMAN KODAK SHOP, NEW YORK CITY
WALTER DORWIN TEAGUE, DESIGNER
R. B. SHERBURNE, ASSOCIATE

Matt Studios

CRANE COMPANY SHOWROOMS, HOLLYWOOD, CALIF.
MORGAN, WALLS AND CLEMENTS, ARCHITECTS

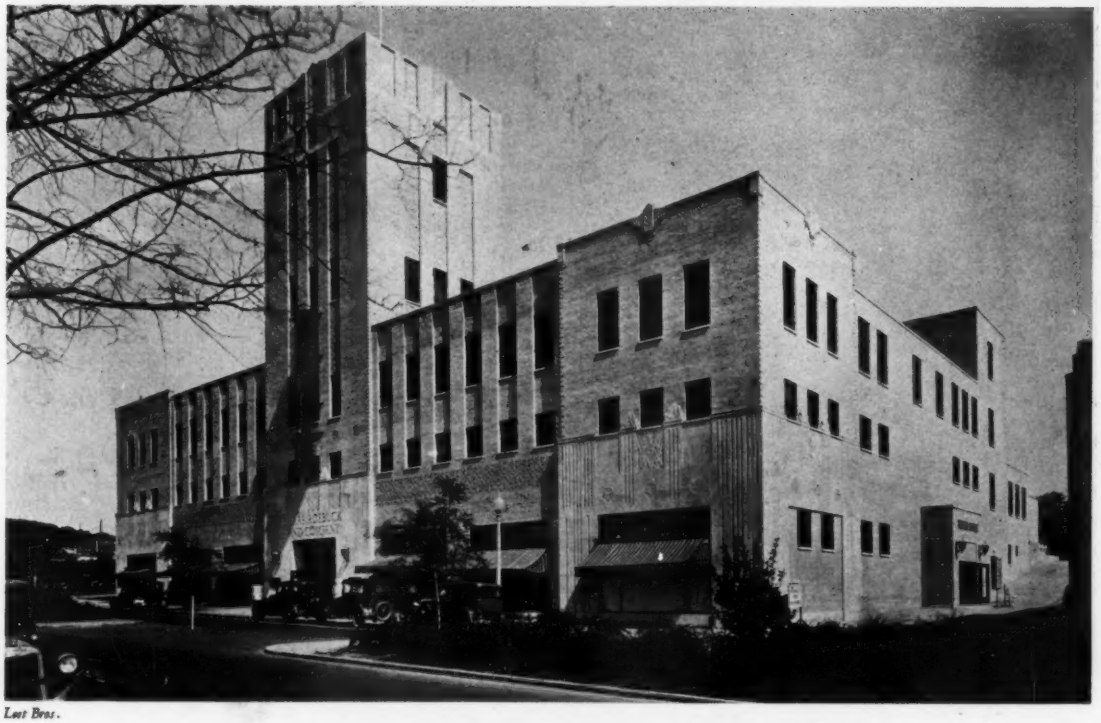
Matt Studios

CRANE COMPANY SHOWROOMS, HOLLYWOOD, CALIF.
MORGAN, WALLS AND CLEMENTS, ARCHITECTS



Dwyer

LOS ANGELES

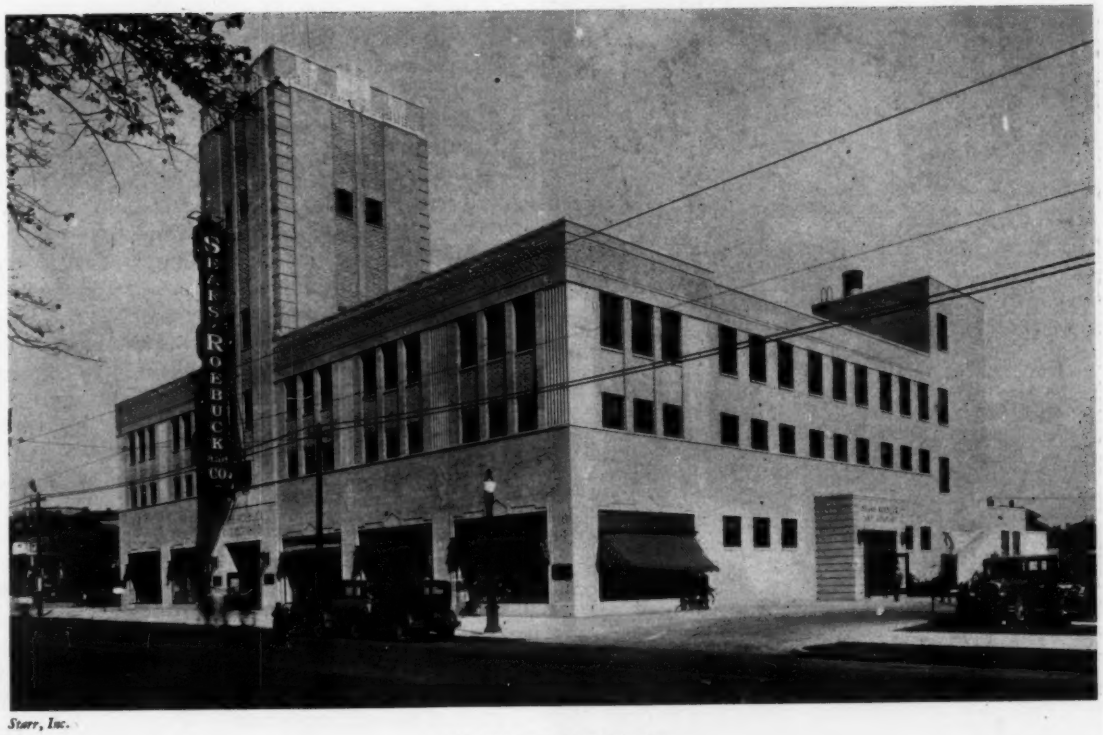


Lust Bros.

WASHINGTON, D. C.

SEARS, ROEBUCK AND CO. RETAIL STORES
NIMMONS, CARR AND WRIGHT, ARCHITECTS

CAMBRIDGE, MASSACHUSETTS



Starr, Inc.

BUFFALO, NEW YORK

SEARS, ROEBUCK AND CO. RETAIL STORES
NIMMONS, CARR AND WRIGHT, ARCHITECTS

NEWS IN BRIEF

BEAUX ARTS ARCHITECTS ON PILGRIMAGE TO ECOLE

A delegation of American architects, representing the Society of Beaux Arts Architects, sailed May 21 from New York en route to Paris.

The immediate purpose of the trip, according to Mr. Kenneth M. Murchison, who originated the idea, is to present to the *Ecole des Beaux Arts* a commemorative flagpole and base as a mark of appreciation from former students. The flagpole, designed by F. C. Hirons, architect, will be set in the courtyard of the *Ecole*. It is American-made, even to the French flag, and will be the only object in the courtyard which is not archaeological.

The S. S. "American Banker" of the United States Line has been chartered for the occasion and renamed the S. S. "American Architect." On the return trip the S. S. "American Farmer," Mr. Murchison announces, will be rechristened the S. S. "American Undertaker."

Official receptions await the architects. One will be held at the recently-opened Colonial Exposition.

Dreyer

MODEL OF FLAGPOLE BASE
FOR ECOLE DES BEAUX ARTS
FREDERIC C. HIRONS, ARCHITECT

The French architects are also reported preparing several parties in honor of their guests.

While in Paris the American architects will stay at the Hotel Madison, Place St. Germaine des Près, in the Latin Quarter. Between the hotel and the *Ecole* is the *Café des Deux Magots* which no architect has been known to pass without stopping.

In addition to Mr. Murchison, who is master of ceremonies, these architects are on the trip:

William F. Lamb, New York
William Van Alen, New York
Whitney Warren, New York
C. C. Zantzinger, Philadelphia
C. Howard Walker, Boston
Archibald M. Brown, New York
Ralph Gray, Boston
Arthur Ware, New York
Clinton Mackenzie, New York
J. Monroe Hewlett, New York
N. C. Wyeth, Washington
Frederick V. Murphy, Catholic University
C. Theodore Biswanger, Philadelphia
Louis La Beaume, St. Louis
William E. Parsons, Chicago
William W. Knowles, Long Island City
Francis Y. Joannes, New York
Henry H. Saylor, editor, *Architecture*
Henry C. Van Cleef, New York
Julian C. Levi, president, Architectural League, New York
Louis A. Walsh, Waterbury, Conn.
George I. Lovatt, Philadelphia
Walter E. Thomas, Philadelphia
Ely Jacques Kahn, New York
Frederic C. Hirons, New York
William H. Gompert, New York
James W. O'Connor, New York
John Tracey, New York
Louis E. Jallade, New York
Ethan Allan Dennison, New York
Hubert Ripley, Boston

Among others:

Ezra Winter, New York
George Wharton Edwards, Greenwich, Conn.
D. Putnam Brinley, New York
Tony Sarg, New York
Philip H. Chadbourn, New York
Arthur G. Covey, former president of the Society of Mural Decorators.
Peter Grimm, president of the Real Estate Board of New York.

The return ship leaves Cherbourg June 12 and is scheduled to arrive in New York June 20.

RADIO CITY OMITS OVAL BUILDING

Building plans filed for the construction of the Rockefeller Radio City show a change from the original model, as illustrated in the April issue of THE ARCHITECTURAL RECORD.

The oval structure, which has been greatly criticized, has been omitted and in its place appear two twin towers, six stories high, with a 60-foot walkway between them from Fifth Avenue to the new garden plaza.

The change is not necessarily final, Harvey Wiley Corbett, one of the architects for the project, pointed out in newspaper interviews. Nor has the change in plan been influenced in any way by the criticism directed against it, he said. The designers are working on new models and later studies may bring back the oval structure, although the twin tower scheme is said to promise greater financial returns.

The total cost of the four buildings for which plans have been filed with the Manhattan Bureau of Buildings is estimated at $26,500,000. Plans for the remaining buildings of the group are now being prepared.

MODEL PLAYGROUND

On property adjoining the site of a new high school at Englewood, N. J., will be developed, within the next five years, a model playground. The development will be under direction of the Russell Sage Foundation and the Playground Association of America.

CHICAGO PLANS COOPERATIVE OFFICE BUILDING

Plans have been completed by Granger and Bollenbacher, architects, for a 17-story cooperative office building on Michigan Avenue, in which each tenant will own his office space. Every fourth floor is reserved for future expansion. This building, comparable to the cooperative apartment house, is the first of its type to appear in Chicago. It has already been rented to the extent of 60 per cent.

COLOR LIGHTING IN THEATER

The new Earl Carroll Theater in New York City, now under construction, will have no lighting fixtures. All illumination will be indirect. There will be four complete lighting systems in the auditorium —white, blue, red and green.

The building has been designed by George Keister, architect, with Thomas W. Lamb as associate.

AUTOMATIC FIRE SKYLIGHT

The New York Fire Department has developed a skylight which opens automatically in case of fire, allowing the flames rising through shafts to escape out into the air. Flames go upward whenever they can. Any obstruction causes them to spread sidewise. For this reason firemen always first chop open the roof to draw off the gas and heat, and thus slow up the fire. The automatic skylight does this task before the department arrives.

THE 64th CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS

Those who attended the sixty-fourth annual convention of the American Institute of Architects, held at San Antonio, Texas, during the third week of April, returned with the conviction that the Convention had been a distinct success. When it was decided to hold the Convention in San Antonio the architects in Texas asked the Board of Directors that this Convention should be a practical one. And this it proved to be, which was a pleasant surprise to many who had anticipated, in view of the business depression, that little of practical value would be accomplished.

But whether or not the crisis served as a spur to action, or whether it was due to the fact that this Convention was mainly one of younger members of the Institute, many of whom came from the smaller cities and towns, and who are apt to be more intimately interested in the practical problems affecting professional practice than are the more specialized architects of the large cities—in any case, there was evident a new spirit; a desire to take practical steps to shoulder the responsibilities of leadership in the profession, in active cooperation with other interests of the building industry. To many delegates this was a welcome change from previous Institute conventions. Often in the past there were complaints of the meetings being somewhat too formal, too much given over to generalizing about art, and too indifferent to the basic changes in economic and social currents; changes which, in the minds of many observers, bid fair to affect profoundly the building industry as they have affected other industries of the nation in recent years. Along with any prospective changes in the building industry, we must expect, of course, similar changes in the practice of architecture.

Two matters of direct practical interest to the profession, especially, occupied the attention of the Convention. These were the need of securing universal and uniform registration laws for architects throughout the states; and the necessity of united action on the part of the profession to secure the allotment of the designing of public buildings in the national government's huge building program

among the best qualified architects in practice in districts where the buildings are to be built.

On the subject of the state registration laws it was felt that in most cases these laws have clearly attained their original purpose of providing a form of protection to the public, to the building industry, and to the profession, against the havoc wrought by incompetent practitioners. Such laws are now in force in thirty-one states, and in most cases they are as satisfactory as could be expected. But in some states these laws are altogether too lenient, permitting the registration of undesirables. The sentiment of the Convention as expressed on the floor as well as in the report of the Board of Directors clearly showed that all possible pressure should be brought to secure uniform registration laws in every state. Such a benefit to the profession as well as to the community at large can only be obtained by concerted action of all architectural organizations aided by other state and national organizations of the building industry, and in particular the Building Congresses and the Real Estate Boards. Also, every effort should be made to have these laws uniform both as to standards and, as far as possible, in form.

Regarding the situation in the office of the Supervising Architect of the United States Treasury Department, which has occupied the attention of a large section of the profession during the past year, a spirited and well attended evening session was held on the first day of the Convention. This meeting, in charge of Mr. Arthur Wallace Rice of Boston, brought out the facts of the case. The delegates expressed a determination to take united action to at least curtail, and if possible to stop, the rapidly growing tendency on the part of the government to encroach upon the field of the private practice of architecture. It appears that the Supervising Architect's Office at Washington has grown in astonishing fashion, until it now numbers more than 1100 architects and draftsmen, several hundred of whom have been added to the organization within a year. The Treasury Department claims that, with this force, it can design government postoffices and other buildings more efficiently and for less money than can the best private practitioners. Exception is made in the case of the largest structures—those costing a million dollars or more. Delegates offered evidence to show that the claim of the Supervising Architect's Office to superior professional competence in design and superintendence was not sustained. Mr. Horace Peaslee of Washington, Second Vice-President of the Institute, stated that he had been asked to certify to the competency of certain candidates for positions as architects in the government office—as full-fledged architects in practically complete charge of a specific building. Some of these architects he knew personally were not competent. Nevertheless they had been accepted for those positions. The Treasury Department's claim of saving money on the cost of architect's fees was also challenged. It was the sentiment of the Convention that the government should not invade the field of private practice; that necessarily a government bureau could not be as progressive in responding to the requirements of the rapidly evolving profession which architecture has today become; and, finally, that it could not, in designing a building, take account of climatic variations, local requirements, and of the needs and opportunities in the building industry, to anywhere near the same extent that could the experienced local architect. This sentiment of the Convention found expression in a resolution offered by Mr. Albert L. Brockway of Syracuse, New York, urging the Institute, through its Committee on Public Works, to press its efforts to improve the situation as it today exists in the Treasury Department.

As sidelights on this question of the government attempting to practice architecture, it was brought out that there was not the same unfortunate situation in the case of states, counties and cities. With one or two exceptions like New York State and the New York City schools, generally throughout the country the designing of state and municipal buildings is in the hands of private architects. The suggestion was also made that in the national government a Department of Public Works be organized with a Secretary in the Cabinet and an Undersecretary, who should be an architect in charge of the supervision of buildings, but not in charge of their design.

There were other interesting subjects discussed by the Convention. The Growing Scope of the Architect's Function, and Newer Aspects of Land and Building Development were two topics that provoked fruitful discussion. The appearance on the floor of the Convention of the President of the General Contractors' Association, Mr. A. P. Greensfelder of St. Louis; of a representative realtor, Mr. Hugh Potter of Houston, Texas; and of Mr. Thomas S. Holden, economist and Vice-President of F. W. Dodge Corporation—each with important contributions to the solution of the problems confronting the architect and with the promise of cooperation with the building industry—was a new note in the American Institute of Architects' conventions. Other interesting achievements, combined with the delightful hospitality of the architects of the West Texas Chapter and the citizens of San Antonio, will make this gathering of the Institute memorable. It was a happy ending to the first year of the presidency of Mr. Robert D. Kohn of New York, who was reelected to succeed himself for a second year as head of the American Institute of Architects.

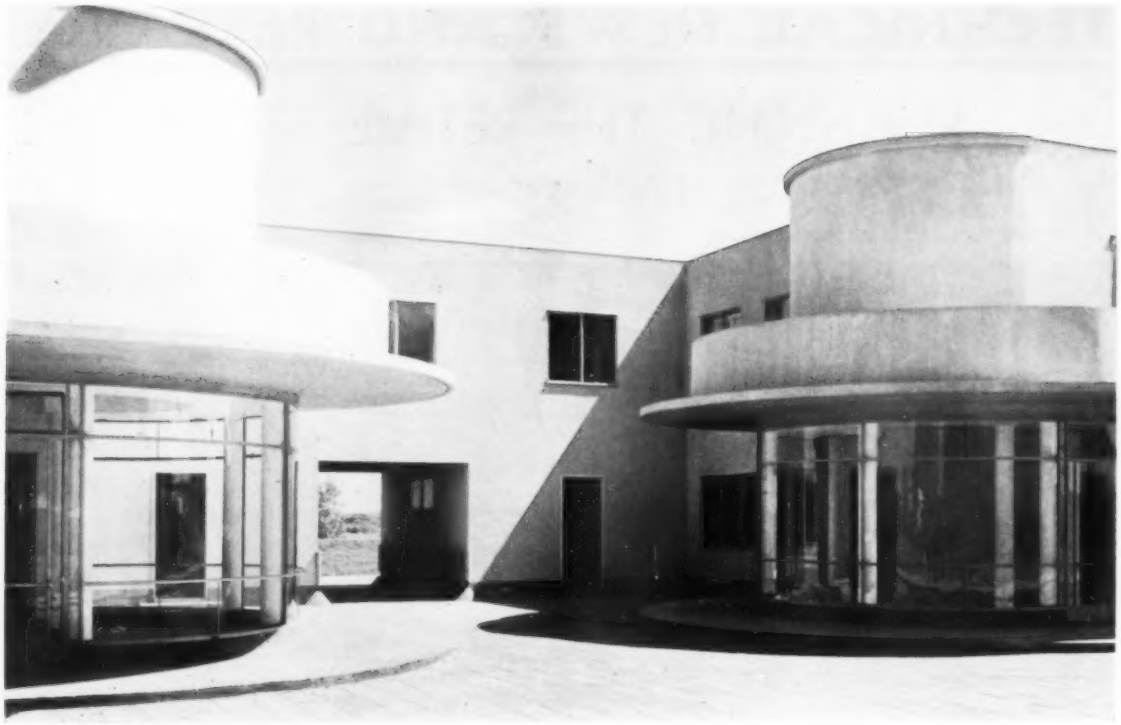
PARKER MORSE HOOPER.

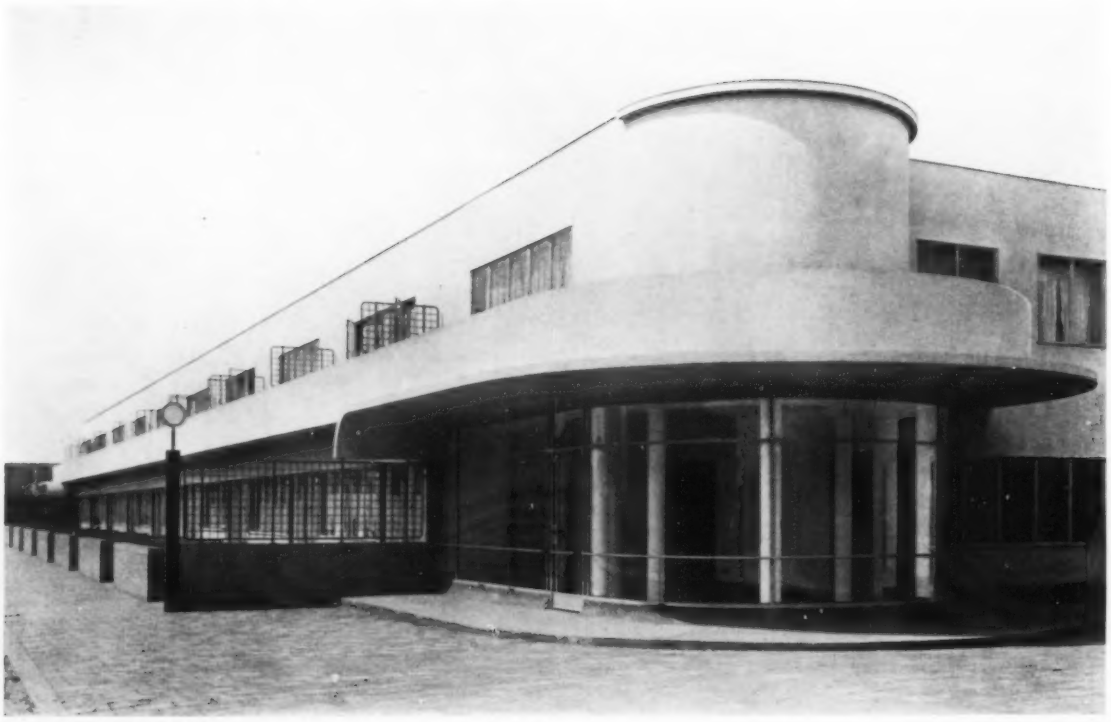
TECHNICAL NEWS AND RESEARCH

PLANNING THE RETAIL STORE

By K. LÖNBERG-HOLM

NEIGHBORHOOD STORE, HOEK VAN HOLLAND, J. J. P. OUD, ARCHITECT





NEIGHBORHOOD STORES, HOEK VAN HOLLAND, J. J. P. OUD, ARCHITECT

The circular plan and the use of plate glass insure visibility from the street and contact between shopper and merchandise.

PLANNING THE RETAIL STORE

By K. LÖNBERG-HOLM

Function: The retail store is an outlet unit for distribution of commodities. It should provide accommodations for receiving, storing and selling merchandise, and for administration and human comfort. The goods should move through the store with a minimum of friction in a minimum of time.

Trends in retailing: The shift from agricultural to industrial pursuits, mass production, standardization and women's occupation in business, industry and professions has caused a withdrawal of women from preparation of commodities. The decrease in size of the average family and the increase in number of families living in multi-family dwellings means less cooking, baking and storage space. The hand-to-mouth housekeeper buys cans and packages in sizes and weights adapted to her particular compressed needs. The tendency is toward a more diversified diet determined by emphasis on health.

Studies show that women buy from 50 to 80 per cent of all goods sold at retail. The woman buyer is a shopper. The automobile, the motion picture, the telephone, the radio, and the printed page have changed the scale of time and distance in retailing. With good roads and adequate transportation the shopper can exercise a free choice in selecting a place in which to buy. Women search about and visit store after store before purchasing. They often divide their purchases among two or more stores.

Space requirements vary with the given conditions. The age of too definite specialization is passing. The trend is toward larger stores handling a full line of commodities. With the development of refrigeration units, centralized meat-cutting plants, quick frozen and packaged meat, and adequate transportation facilities for delivery, the grocery system is swinging to the complete food market with soda fountain, lunch counter, meat, fruit, delicatessen, bakery, household products, tobacco, etc. Drugs constitute only a minor part of the sales of a drug-store. Cigar stores are introducing refreshment counters.

The type of service varies from credit-delivery to cash-and-carry, and from cafeteria self-service to semi-self-service and full service. No attempt will be made in this article to differentiate between chains, independent, and cooperative stores, or to deal with the related problems of distribution from producer to retail outlet. Department stores and specialty shops will not be included. (See *Store Buildings*, THE ARCHITECTURAL RECORD, June, 1929.)

Waste in distribution: Although costs of production have been continually lowered, costs of distribution have been increasing. "The waste in *physical distribution* alone has been estimated by several competent groups at not less than $3,000,000,000 a year. This includes the wastes of time, labor, and material in the multifarious operations that take place after a product leaves the final machine or process in a factory, and before it is in the hands of the final consumer ready to be used. . . . A recent survey of distribution cost of twenty staple commodities indicated that freight charges amounted to only 10 per cent of the total, whereas packing, handling, loading, unloading, rehandling, each often repeated several times, accounted for the other 90 per cent."*

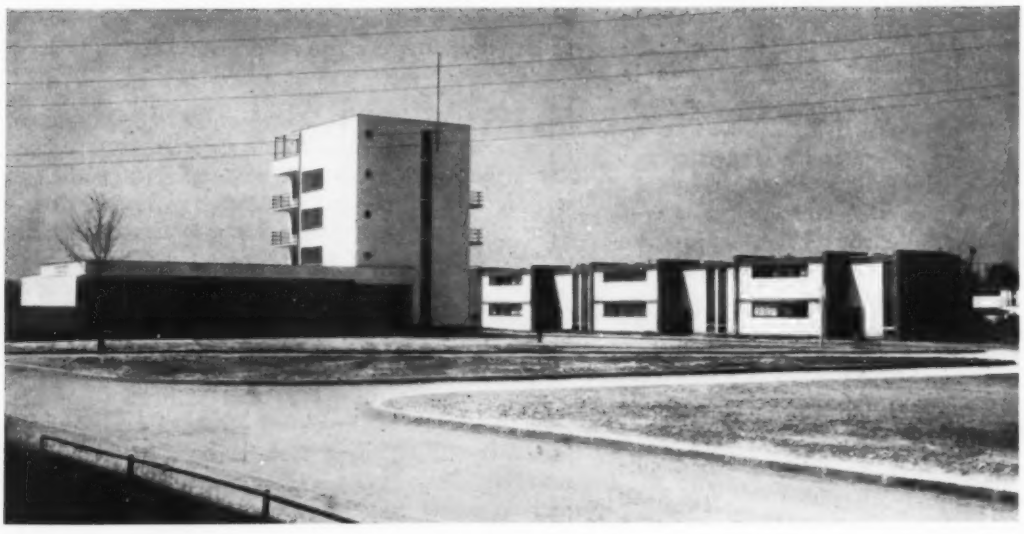
Research work: The U. S. Department of Commerce, chains, wholesale, and retail associations are conducting surveys of retail merchandising conditions in order to find the points along the line of distribution at which substantial economies can be effected. Model stores have been set up in a number of cities as being suggestive of ideal arrangement to merchants. Plans of model stores can be obtained from the agencies listed at the end of this article.

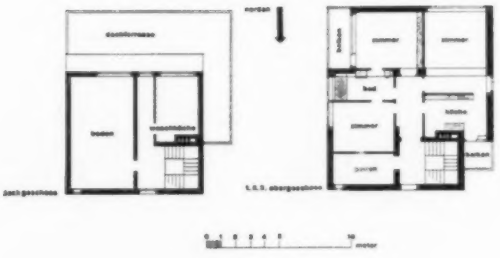
Each store and each line of stores represents individual problems, but general principles for the arrangement of many types of retail outlets have been established. Improved layouts have reduced retailing expenses by increasing the rate of turnover and reducing labor and overhead. Those general principles which affect the physical characteristics of the store—*open display*, *self-service*, *departmentizing*—have been used to establish the following criteria for the store.

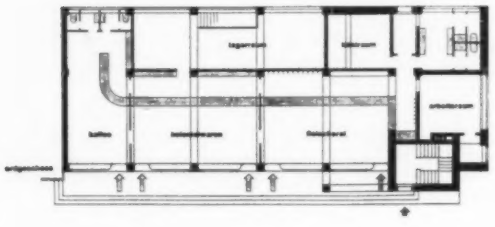
Physical criteria:

Maximum organic relation to community.
Maximum sensory contact between shopper and merchandise.
Maximum ease of sales transaction.
Maximum physical comfort.
Maximum flexibility.
Minimum cost of construction, maintenance and operation.

*"Simplification as a Basic Principle of Sound Merchandising." By W. E. Braithwaite, Chief, Division of Simplified Practice, U. S. Bureau of Standards. National Grocers Bulletin, Special Convention Edition, 1930.







COOPERATIVE STORE, DESSAU-TÖRTEN
WALTER GROPIUS, ARCHITECT

The store is built as part of a housing development. Meat, grocery, coffee and tobacco departments have separate entrances and are divided by glass partitions. Toilets for shoppers and employes, storage and office at the rear. Living quarters for the store keeper are provided in the adjoining structure.

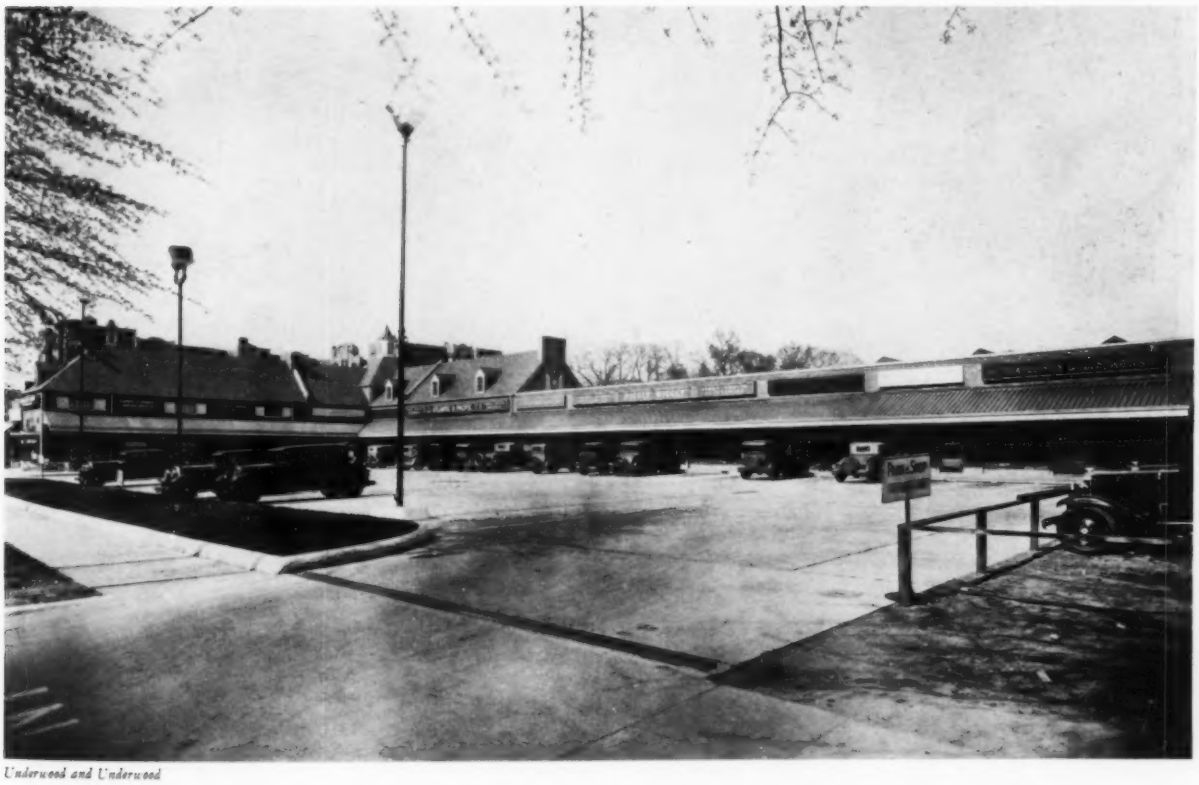
LOCATION

The more convenient and accessible the store is to the public the better it is. Each problem of location requires separate study in the light of its particular circumstances, the character of the goods, the class of trade catered to, the nature of the neighborhood and other existing conditions. The opening of a new store should be preceded by a study of all available statistics pertaining to the trade area, increase in population, estimated payroll, types of industries, number of existing retail outlets, density and nature of traffic, whether pedestrian or vehicular, male or female, shifting of retail trade area, parking facilities, relation of rent to estimated sale, etc. There is a trend from main shopping areas to secondary business districts and neighborhood stores, not only in larger cities but in smaller communities as well. Traffic congestion is becoming so serious in downtown areas that women find it more convenient and comfortable to shop in the neighborhood center. Rising rentals in downtown areas and the limitations of small selling space and fronts restricted to from 10 to 20 feet make the necessary sales volume impossible. Charging the rent of "key-locations" to advertising has not proven sound business.*

Community shopping centers: The introduction of retail stores in buildings of unrelated purpose is in most cases caused by the inflated land values of the present economic system. The narrow store front and the depth of the selling space of the typical city store are opposed to the principles of economic retailing. The store front becomes a display case that completely screens the store and acts as a barrier between shopper and merchandise. Artificial illumination and ventilation have to be employed all year round at all times of the day.

The design of community shopping centers offers new problems to the community planner and architect. The store buildings should be designed to serve the purpose of retailing only. Studies should be conducted to establish geographical and physical relations of the retail outlet units to the community. The shopping center should be readily accessible to automobile shoppers in large numbers. Parking space or garage facilities should be provided. Filling stations, rest rooms, amusement and news centers and restaurants should be part of the development or adjacent thereto.

**Good-bye to the Chain Store "Advertising" Location* by Herschel Deutsch, ADVERTISING AND SELLING, March 18, 1931.

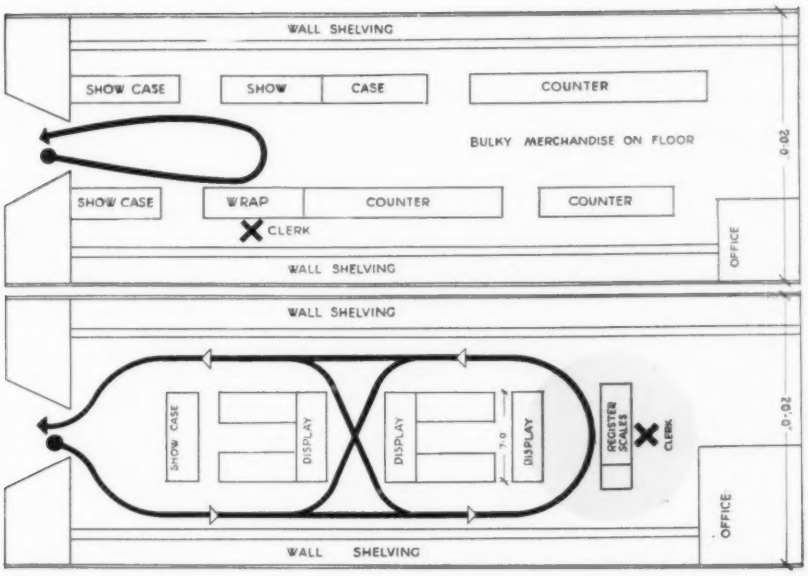


Underwood and Underwood

"PARK AND SHOP STORES", WASHINGTON, D. C.

COOPERATIVE STORE, STOCKHOLM
DESIGNED BY THE ARCHITECTURAL OFFICE OF KOOPERATIVA FÖRBUNDET, SWEDEN

The columns are recessed to permit an uninterrupted plate glass front. The whole interior is visible from the street. The platform is determined by the steep slope of the street. Neon tube sign.



The store above (old arrangement) has long counters that separate shopper from merchandise, about half of which cannot be seen. The shopper stops near the entrance while the clerk assembles her order. In the new arrangement (below) the counters have been opened and the center of activity moved to the rear. The equipment has been arranged in islands and most of the merchandise can be seen and handled. ("Modern Hardware Store," Dipman.).

LAYOUT

Signs: Signs should be used to announce the shopping center, the shops, and the line of merchandise. The effectiveness of a sign is determined by the traffic it commands. Legibility area, not visibility area, is important. See *The Gasoline Filling and Serving Station*, THE ARCHITECTURAL RECORD, June, 1930.

Open display: The shopper makes her first contact with the merchandise through sight. Sight is especially valuable in impulse merchandising. Manufacturers and dealers are stressing the value of visual appeal for all commodities. Many analyses have established the fact that the show window of the average retail store is directly responsible for one-third of the total sales. An example of one of these tests where a merchant boarded up his windows for a while and then compared sales and profit figures is given below. This merchant found that his sales volume dropped 25 per cent and his profits 33⅓ per cent. The particular items:

Candy dropped 32 per cent.
Sodas dropped 14 per cent.
Specialties dropped 41 per cent.
Prescriptions dropped 2 per cent.
Stationery dropped 10 per cent.
Toiletries dropped 18 per cent.

The loss was heaviest in the more profitable specialties, and the figures confirm general experience that one-third of the profit for retail stores should be charged to window display space. (Windows represent from 12 to 14 per cent of the total rent charge.)

The principles of *open display* are based on these facts. The whole selling space is made display space. Everything which the store sells that has visual or tactual appeal is stocked so that it can be seen by the shopper and handled so far as sanitation and practicability permits. Merchandise that cannot be handled is displayed under glass. High priced or breakable merchandise is displayed out of reach of the shopper. Women want to see what the store has to sell. They want, further, to handle each article. Goods sell more rapidly when the shopper inspects them closely. If part of the merchandise must be stocked out of sight, it should be those goods the customer most frequently buys. Owners of open display stores are reported to agree that theft is negligible in comparison to increased sales, i.e., increased rate of turnover.

Maximum sensory contact is effected by increasing the area of display and customer circulation. Instead of using counters arranged to keep the customers away from merchandise stocked in bulk, the whole floor is thrown open to the customer. Open display tables replace the counters and showcases. Wall shelving should not be over 6 feet high.

STANDARD COOPERATIVE STORE FOR SMALL COMMUNITIES
DESIGNED BY THE ARCHITECTURAL OFFICE OF KOOPERATIVA FÖRBUNDET, SWEDEN

INTERIOR OF STORE SHOWN ON PAGE 500
DESIGNED BY THE ARCHITECTURAL OFFICE OF KOOPERATIVA FÖRBUNDET, SWEDEN

The selling space is shallow and wide to insure daylighting and visibility from street. Meat and grocery departments are divided by a plate glass partition. Rubber flooring, chromium-plated fixtures, columns and doorframes.

Visibility: The best store front is no front. The store itself is the best display window. Groceries, hardware stores, drygoods stores, bookstores, and furniture stores have eliminated with advantage display windows with high backgrounds and made the whole store visible from the street. The prevalence of window and automobile shopping demands immediate unobstructed view of the interior. Plate glass fronts should therefore be as wide as possible without horizontal or vertical structural members, utilizing metal clip construction for corners. Where climatic conditions and the nature of the merchandise permit, the glass front can be eliminated entirely or made folding, cantilevered, or vertically sliding. The glass should extend as far down as practical, protected with kickplates, rails or curbs, permitting flexibility in window display. The selling space should be open to view above a height of three to four feet. The clerks should be able to see the entire length and width of the room from any position. The shopper should be able to see the goods displayed from any point of the room.

All parts of the selling space, especially the *center of activity*, often located in the rear of the store, should be well lighted, full advantage being taken of natural lighting. (See LIGHTING.) All materials and colors should be selected with regard to their light-reflecting properties. Attention is called to a more extended use of structural and prismatic glass.

Reflections in the plate glass produced by daylight (especially bright sunshine) can be neutralized by proper lighting of the background or the store (see LIGHTING), by the use of awnings and canopies, and by placing the glass normal to the lines of vision. The temperature inside the glass front should be about the same as the temperature outside to prevent steaming and frosting on the glass. The most common causes for steaming and frosting are radiators placed too near the back of the window without proper insulation, basement-heating devices underneath the window, high-powered batteries of illuminating devices improperly ventilated and heating the glass faster than it can be cooled, and window trimming blocking ventilators.

Display facilities: A store sells merchandise, not architecture and equipment. The design of the store and the display equipment should be subordinated entirely to the purpose of displaying merchandise to its best advantage. Self-expression, monumental and picturesque efforts are out of place.

Open display should be placed on levels that equally facilitate visual and tactual contact. Standardized metal equipment for display of various lines of merchandise is on the market. It should be light and easy to move around. Impulse merchandise that cannot be handled and that is displayed to attract attention should be located in the lines of vision of the shopper or passer-by. Display cases should be placed so as not to obstruct the view of the store. The design of glass display cases and windows and the height of the display level above the floor is determined by the nature of the merchandise. (Show window platforms for grocery stores are usually from 20 to 28 inches off the sidewalk; for shoe stores from 12 to 16 inches. Furniture stores, automobile showrooms, and kindred stores have their show window platform practically on the street level.) Open and enclosed display islands can be used to break up the store front leading the shopper into the store through a space from which he can view the merchandise without interference from traffic. Display islands should be placed with the displays normal to the lines of vision.

All display equipment should be movable or flexible to satisfy varying conditions and varying levels of display. The more levels are brought into play, the more spatial limitations can be overcome. The floor back of the window can be divided into sections that can be raised and lowered to desired heights by mechanical devices. Display windows are made with adjustable sides, background and ceiling. Display platforms can be made revolving. Dumbwaiters and trapdoors to basement may facilitate the changing of display. Bulkheads should be removable.

Colors should be used to focus attention on the merchandise. Neutral colors or white should be used in stores with a variety of merchandise or frequent changes in display. Butcher shops are using green colors to bring out the reds of the meat.

Television, radio and movies showing fabrication and use of the merchandise might be incorporated in the stores of the near future.

Certain lines of merchandise should be protected by awnings from the direct rays of the sun.

Access and store circulation: The selling space should be as accessible as possible. The store should be on the street level with access removed from lines of street traffic. Doors should be easily operated and at least 3 ft. 6 in. wide; 4 ft. is recommended. Attention is called to the use of automatic door openers with photo-electric cell control. Larger stores should have separate doors for access and egress, or separate doors for each aisle. Center entrance is most desirable for smaller stores. Side entrances are generally objectionable.

The arrangement of the selling space should insure free, easy distribution of traffic. Cross traffic should be avoided. The aisles should be ample. Most new stores use two aisles instead of one center aisle. Neon signs can be used to identify the various departments.

Self-service: With stock openly displayed, weighed, measured, done up in packages and plainly priced, the logical procedure is to select articles without

COOPERATIVE STORE, STOCKHOLM
DESIGNED BY THE ARCHITECTURAL OFFICE OF KOOPERATIVA FÖRBUNDET, SWEDEN

Self-service is not used in this store, but all goods are displayed to their advantage on a sanitary background of glazed tiles, marble, plate glass and chromium-plated metal.

the assistance of a clerk. Most women inspect more leisurely and buy more quickly with less clerk attendance. Wrapping and counting counters are provided at proper intervals. The advantages of self-service are reduced customer waits, handling of peak hours with convenience to the shopper, handling of larger volume of sales within a given time, and reduced movement on the part of clerks.

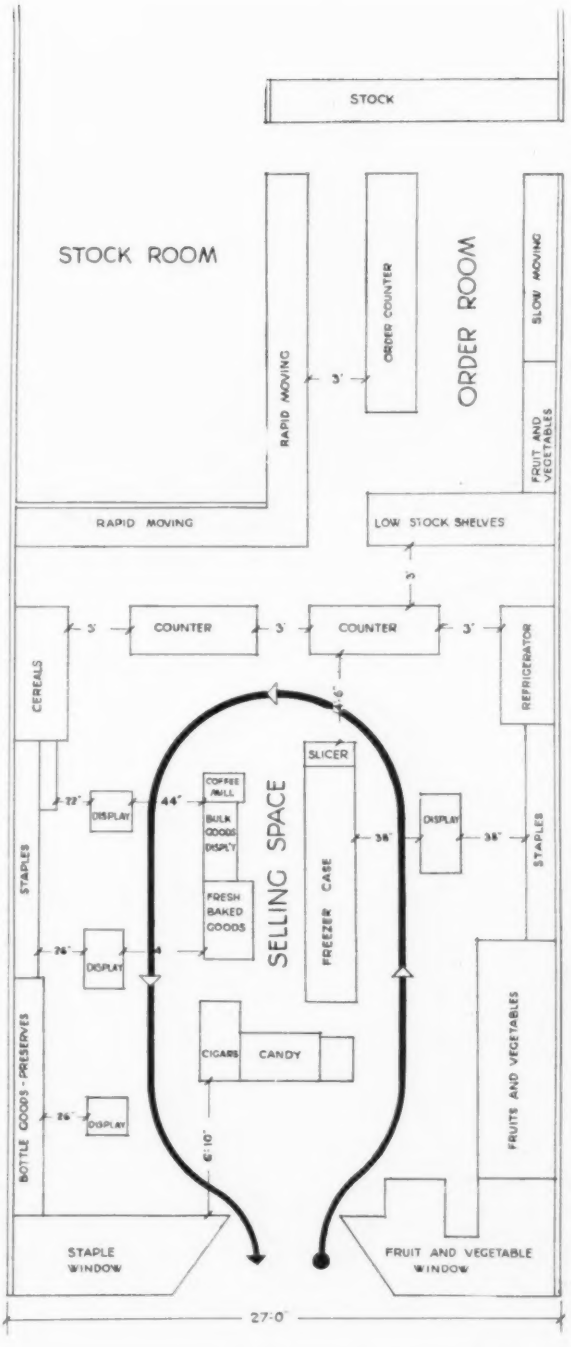
A grocery store without self-service doing $100,000 a year will required from three to seven clerks. It is claimed that on a self-service basis the number can be reduced to one seller of shopping goods and one or two wrappers and sellers. The degree of self-service varies from stores with automatic dispensing machines over self-service cafeteria systems to semi-self-service, where customers serve themselves with everything except bulk goods and those commodities which cannot be handled.

Departmentizing: Articles of related nature are placed in adjacent displays to facilitate easy orientation. Demand goods are generally placed in the rear of the store with the wrapping counter—the center of activity—as close at hand as possible. Little time and few steps are required in serving the customer. Impulse merchandise is usually pick-up goods that require display to call them to the attention of the shopper. They are placed towards the front of the selling space. By placing demand goods in the rear the shopper coming into the store is drawn past the impulse goods and passes this type of merchandise on the way out.

Circulation is controlled through the position of display equipment. If it is desirable to have the shopper turn to the right on entering, a wider aisle is placed to the right as people usually follow the widest space offered. By placing the wrapping counter and register to the left, the customer will take the aisle to the left on leaving the counter. Thus the two main aisles are traversed. For shops with complete self-service the circulation is guided toward the cash register at the exit door. Open island display insures maximum circulation, widens the aisles and reduces congestion. Departmentizing tends to preclude accumulation of goods that will not sell and assures easy control of stock. Goods are in full view; if an article does not sell the fact becomes readily apparent.

Size and shape of selling space: Compactness of selling space is essential for ease of operation. Window and automobile shopping demands stores with maximum extension parallel to the lines of street traffic or of island type. The store should not be too deep. People will walk up to 60 feet if conditions otherwise are favorable and the back of the store is sufficiently lighted.

The following dimensions are used only as an illustration. Grocery stores with a selling space



Plan for a model store utilizing self-service, prepared by THE PROGRESSIVE GROCER. The plan shows relation between selling space, order room and storage and location of merchandise. The display islands control circulation. Demand goods are placed in the rear.

NEIGHBORHOOD STORES, ROTTERDAM, J. J. P. OUD, ARCHITECT

The stores are part of a city housing development for minimum size dwellings shown on the opposite page.

20 to 30 feet wide and a depth of not more than 40 feet have ample space for a business of $100,000 and up annually.

Storage, delivery and office: All delivery activities should be removed from the selling space. Small stores handle delivery orders from the counter where the telephone should be placed. Larger stores have separate order rooms adjacent to counter and storage. If trucks are used for delivery, garage space should be provided adjacent to the order room, with loading platforms for receiving and delivery.

Storage requirements vary. The store is no longer a warehouse. The trend is towards the display of all goods to increase the rate of turnover.

Conveniences: Seats for shoppers, counter space or table tops for self-serving customers, toilets, lavatories, rest rooms, drinking fountains, telephone booths, and lockers should be provided according to specific conditions.

CONSTRUCTION AND MECHANICAL EQUIPMENT

Flexibility: The structure for a shopping center should easily accommodate varying requirements for different types of stores, changes in store layout to meet new conditions and store extension. Frame construction with few supports should be used in preference to wall-bearing constructions. Partitions should be easily changed and constructed of materials with high salvage value.

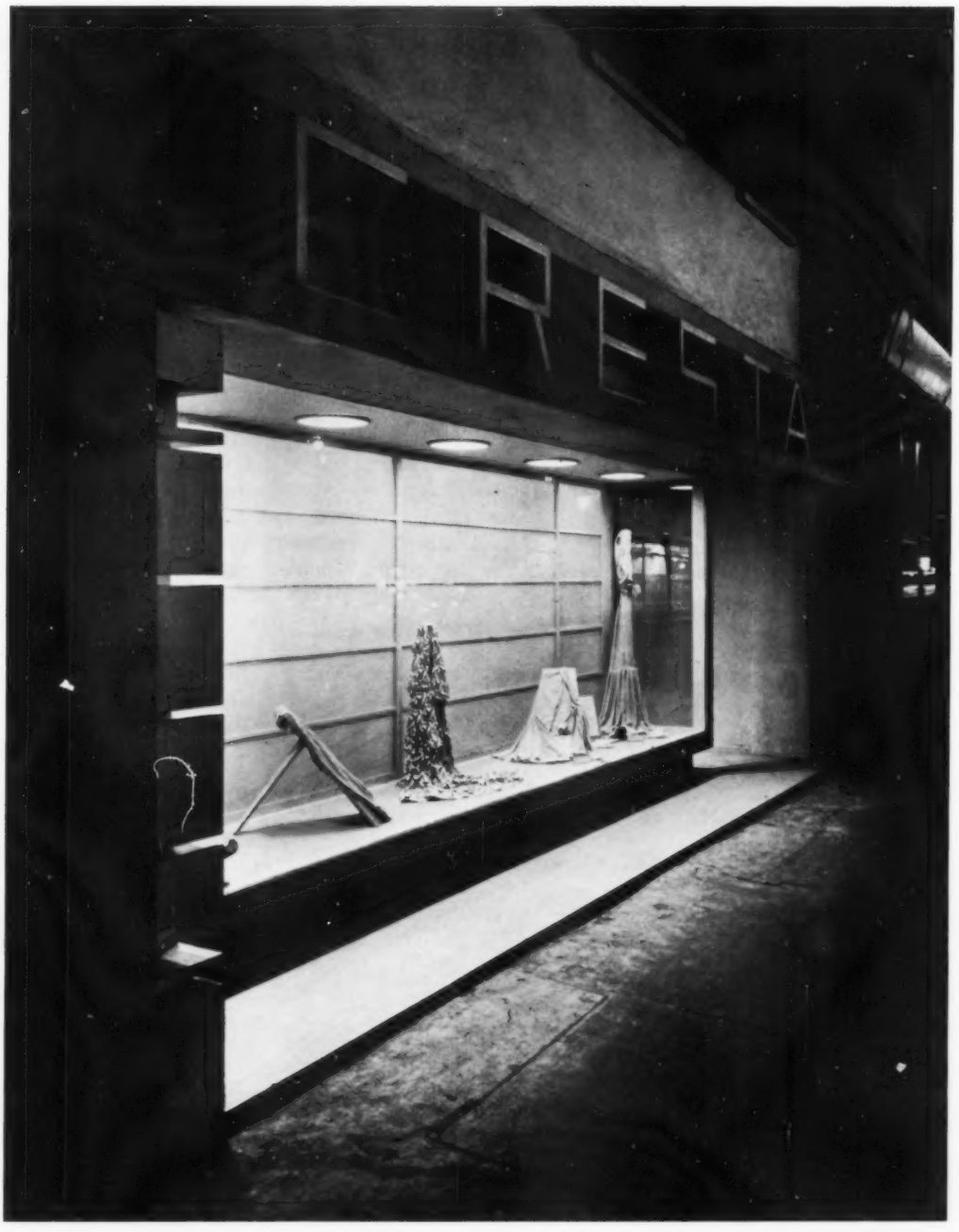
Physical comfort: Proper ventilation is essential, especially in stores where food is sold. Odors should be removed rapidly. Complete air conditioning systems have been incorporated in recent store constructions. Care should be taken to keep out dust. Provisions for heating and cooling vary with climatic conditions and type of merchandise. Refrigeration units are included in food store equipment. Attention is called to the use of overhead *panel heating*. (See THE ARCHITECTURAL RECORD, November 1930.)

Walls and ceilings should have sound-absorbing surfaces on account of the large amount of glass used in most stores. Fans and mechanical equipment should be as noiseless as possible.

The store should look clean and be clean. Surfaces and corners should be easily cleaned. Colors should be light.

Cost: Large manufactured units, easily transported and erected, reduce erection time. All materials used should be resistant to fire and hard wear, non-absorbent, vermin-proof, easily replaced, repaired and removed.

HOUSING DEVELOPMENT WITH NEIGHBORHOOD STORES, ROTTERDAM, J. J. P. OUD, ARCHITECT



SHOP FOR CRESTA SILKS, LTD., LONDON, WELLS COATES, ARCHITECT

The shop was designed as a four-year exhibition stand. Total expenditure including demolition of former premises, electric heating and lighting installation, fixtures, furniture and carpets was limited to £1,000. The actual cost was £983. The shop was designed and completed in six weeks. The size of the display sign letters was determined by the desired main appeal from the entrance of a department store across the street, 90 feet away.

LIGHTING*

Surroundings, approach, signs: Parking space, ramps, and approaches to shopping centers should be clearly indicated and adequately lighted at night. Neon tube lighting can be used to direct the traffic. Glare should be avoided. Automatic time switches and photo-electric cell control will turn the light off at any desired hour. Attention is called to the use of floodlighting, colored light, and glass constructions with built-in lighting equipment for the buildings.

Window lighting: The distinction between show-window lighting and store lighting applies primarily to downtown retail stores where factors unrelated to the problems of retailing have hidden the store behind a display window case.

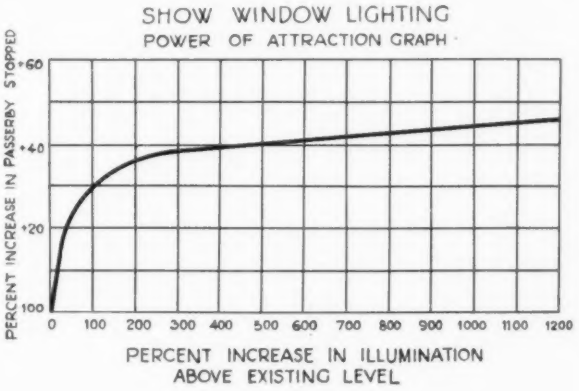
Good window lighting should:

1. Provide that level of intensity which experience and research have demonstrated will attract shoppers into the store.
2. Be unobtrusive in appearance.
3. Enhance the display.
4. Be flexible.
5. Be as economic as possible, bearing in mind the above three factors.

Daylight, especially bright sunshine, often produces reflections in polished plate glass fronts that detract from or obscure the merchandise on display. This is especially the case when the store interior or the background of the display window is dark. Therefore, it is not only necessary to make use of lighting equipment during the day to overcome these reflections, but in some cases to provide additional equipment of higher intensity. The reflectors are often installed on separate circuits so that higher intensities can be had during the daytime than at night, as in many instances superlighting of from 200 to 1,000 foot-candle intensity is employed to overcome daylight reflections.

How much light to use: The eye operates fairly efficiently at brightness levels about equal to indoor daylight (i.e., equivalent to from 20 to 100 foot-candles on a white surface). From the standpoint of effective vision only, illumination on light-colored displays should therefore be above 30 foot-candle, and on dark-colored displays above 100 foot-candles (allowing for absorption). However, competition by neighboring windows is usually the governing factor. If all windows in a given district were lighted to the same intensity the competition for customers would depend upon merchandising tactics alone. Eventually window lighting may be stabilized at some high level which will bring this condition about, but at the present time it is still possible to take advantage of the stimulating value of light. Illumination to attract the attention of motorists must be relatively much higher than that required to secure the attention of pedestrians, due to the shortness of the interval in which the display is visible.

The following graph compiled from test information now available shows the increase in percentage of passers-by stopped that may be expected for various increases in window-lighting intensities above the neighborhood level.



Inspection of this graph shows that when a merchant lights his windows 100 per cent better than those of his neighbors—in other words, when he doubles the neighborhood level—he can expect 30 per cent more passers-by to stop and look at his windows than was the case previously. If he triples the neighborhood level, he can expect about 36 per cent more passers-by to stop. For additional increases in illumination, additional passers-by will be stopped but not in interesting percentages.

In making the above graph, the neighborhood level was assumed to be 40 foot-candles which is a general figure taken from actual practice. Where the neighborhood level is actually much greater than 40 foot-candles, the above relationship may not hold strictly true. Many other factors could also affect the result, and too great reliance should not be placed upon studies of this nature, but sufficient information is available to demonstrate the sales value of better lighting. In designing the show-window illumination the usual procedure, therefore, is to determine the average intensity in the windows of nearby competitors and to lay out the job for twice this intensity.

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* Valuable information on lighting was received from H. L. Logan, Holophane Company, Inc.

SHOP FOR CRESTA SILKS, LTD., LONDON, WELLS COATES, ARCHITECT

Letters in metal. Fascia and canopy supporting letters faced with galvanized steel plymax. Back screen steel frame glazed with ¼" Georgian wired rough-cast glass sandblasted one side. Soffit and sides of batten board. Base faced with ¼" copper plymax. Paving pink terrazzo. Front finished in two colors matte cellulose paint, slightly stippled surface, pale flesh and warm drab. Sandblasted glass, pale green. Concealed ligthing through 12 inch diameter circular openings. The returned end to the glass screen illuminated with one interior light projected on to a curved sheet of white painted plywood.

There will be cases where an examination of all the factors involved will lead to a choice of much higher levels of illumination. Tests show that although the number of passers-by stopped does not increase rapidly after the show window illumination has been raised to three times the level of the neighborhood, the increase in sales continues on beyond this point at a greater rate for higher intensities than does the increase of passers-by stopped. In other words, still higher intensities than two or three times the neighborhood level may result in bringing a larger percentage of the passers-by stopped into the store than occurs at the lower intensities and does, in certain cases, justify the use of such greatly raised levels.

Other tests have shown that color lighting was able to attract 40 per cent more persons than clear light for the same hourly current cost. However, color lighting if used continuously loses a large part of its attracting power after it ceases to be a novelty.

The cost of using show-window lighting twice as high as that of neighborhood level is not excessive and can be favorably compared with other expenses, as many analyses have established the fact that the show-window of the average retail store is directly responsible for one-third of the total sales.

SPACING OF REFLECTORS AND SIZE OF LAMPS FOR SHOW-WINDOW ILLUMINATION

Population of City or Town	Location of Store	Spacing of Reflectors (Inches)	Size of Mazda Lamps (Watts)
5,000 or less	Main Streets	15	150
	Side Streets	18	150
5,000 to 50,000	Main Streets	12	150—200
	Side Streets	15	150
Above 50,000	Super White Way	15	500
	Metro. Dist.	12	200
	Main Streets	12	150—200
	Side Streets	12	150

Westinghouse Lamp Company

Type of equipment selected will depend upon the dimensions of the window, the relation of its depth to its height, the character of the background (non-glossy to avoid reflections), the character of the average display, whether it is an island or standard window, the type of lighting distribution that will best suit the nature of business and the class of store.

Light sources should be concealed from the vision of the spectator. Bare lamps without reflectors cause unsightly shadows on the display and glare in the eyes of the passers-by.

Large windows will require proportionately larger equipment and heavier wattage lamps than smaller windows. Deep windows need the light thrown at higher angles to compensate for their greater depth. A dark background will require more light than a light background. A window trimmed close to the glass will require more light straight down than one trimmed further back. A window trimmed up to the top of the background will require more light in the upper part of the window than one customarily trimmed on the bottom.

Windows with closed backs usually require the background lighted from top to bottom. Windows with open backs require the light carefully controlled and kept relatively near to the front of the window to prevent glare to the people in the store. Island windows require a similar treatment because they can be observed from all sides and the light must be kept below angles at which it may enter the eyes of observers.

Drug stores require vertical illumination emphasized in their windows; furniture stores, horizontal. Stores that customarily centralize their display in the window can with advantage concentrate their light in similar fashion. Stores that customarily spread their display all over the window need uniform illumination.

Footlights are used to soften the shadows from overhead lighting, and spotlights and floodlights to light an important part of the exhibit. Color lighting effects are secured by auxiliary equipment more economically and with greater effectiveness than is possible through the use of screens on the main equipment.

Polished steel or mirrored glass reflectors and recessed flush-type reflectors with control lenses for vertical and horizontal beams specially designed for show-window service are on the market. Proper ventilation should be provided when exposed metal reflectors are used, in order to avoid steaming and frosting of the glass front and to prevent damage to certain types of merchandise like candy and wax. The equipment should be sufficiently flexible to serve variations in the display. Provisions should be made for possible increase of illumination.

Attention is called to the development of tube lighting and Claude Neon lighting for show windows, resulting in greater flexibility in illumination and less space requirements for the equipment. Photo-electric cell control can be used to turn display lighting on and off whenever a pedestrian or automobile passes.

When the type of equipment has been selected, provision should be made in the design of the window construction to properly accommodate it.

SHOP FOR CRESTA SILKS, LTD., LONDON, WELLS COATES, ARCHITECT

Front salon back of display window with entrance to fitting room. Counter with built-in cash register in pedestal. Built-in lighting panels. Materials: steel, plywood, batten board.

Store lighting: "The abrupt change in level of illumination between daylight outdoors and artificial light indoors is an important factor to be considered in the lighting of many interiors. When exposed to the high levels of daylight illumination the pupils of the eyes are contracted to their minimum size and require about 30 seconds to open to a point of equilibrium for the lower intensity of artificial illumination. . . . Thus, upon entering a store, for example, the pupils admit about one fourth as much light as they do some 30 seconds later. . . . If the level of general illumination is actually 20 foot-candles, upon entering, the effective illumination is initially equivalent to about 5 foot-candles. The effective illumination then increases from 5 foot-candles as the pupils open, but does not reach the maximum for some time owing to the lag of adaptation. The first impression of the interior may be quite unfavorable due to the apparent low level of illumination in contrast with that of daylight outdoors. . . .

"In addition to the 'loss' in foot-candles upon entering, the visual annoyance produced by the sudden plunge from daylight to artificial levels of illumination may be important in discounting the merit of an otherwise fine lighting installation. The undesirability of such a situation is further emphasized by the fact that many merchants consider the front part of their stores as the most valuable from the standpoint of creating sales.

"If a brightly-lighted interior is entered from a darker area . . . the effect of the sharp contrast in illumination is not of importance compared with the opposite condition. The pupils of the eye contract to compensate for the higher level of illumination in a very short time. Laboratory measurements on the opening and closing of the pupil indicate that the pupil takes about as many minutes to open as it does to close."*

The value of a more gradual change in level of illumination should be recognized. Full advantage should be taken of daylight openings to produce a gradient between the bright daylight and the darker store interior. When artificial lighting must be used, a level of illumination as high as 50 foot-candles is justified in the area near the entrance. This high intensity need not be carried out throughout the store.

The amount of light in the store depends directly upon the window lighting. If a proper balance is not arranged between these two, the best window lighting may fail its purpose. There are tests on record proving that when the window lighting has been raised to a level determined to stimulate passers-by to enter the store, the passers-by have failed to enter due to the dimness of the store interior. As a general rule the interior of the store should be lighted to not less than one-tenth of the illumination of the show window and when the illumination of the show window is less than 50 foot-candles the illumination of the inside of the store should not go lower than 5 foot-candles. In the business districts of most cities 10 to 15 foot-candles are invariably recommended today for store lighting. Many stores find 20 foot-candles desirable and do not consider this excessive in view of the increasing intensities of street lighting, sign lighting, and show-window lighting. It is well to provide an installation which is sufficiently flexible so that it will not become obsolete in a few years.

Distribution of light should insure illumination of all sections of the store where merchandise is displayed, inspected, and sold. Articles are best seen when presented normally to the direction of vision. Most stores therefore require illumination on vertical surfaces rather than horizontal. To assure good illumination on the vertical surfaces of the display, the lighting equipment should be arranged with direct reference to the lines of display on each side of the store and lines of display equipment down the center of the store. One line of lighting units is, therefore, seldom satisfactory. Usually, at least two rows are called for, parallel to the sides of the store and primarily illuminating the display fittings and their contents on their respective sides. Where central aisles occur, the lighting units can be arranged over the aisles to spread their light on the display fixtures and merchandise on each side. To assist in focusing attention on the merchandise, the average retail store using three rows of ceiling fixtures would be better off with the omission of the central row. In that way the brightness of the center of the store devoted to traffic can be reduced, and the contrast between it and the bright merchandise will enhance the value of the lighting on the merchandise.

Showcase lighting requires approximately four times the intensity of the general store illumination. The lighting equipment is installed along the front upper edge of the case with showcase reflectors or trough reflectors. Merchandise affected by heat should be lighted from outside. Underfloor duct system should be specified.

Wallcase lighting requires approximately two or three times the intensity of the general store illumination. Individual reflectors, trough reflectors or lighting equipment over diffusing glass panels.

Color matching and accurate identification of color is often necessary. Clothing stores, dry goods stores, haberdasheries, and paint stores especially, should be provided with daylighting equipment as a means of approximating daylight.

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*LIGHTING PLUS VISION EQUALS SEEING. By M. Luckiesh and F. K. Moss. Paper presented before the Twenty-fourth Annual Convention of the Illuminating Engineering Society, Richmond, Va., 1930.

CHECKING LIST

Location: Survey of trade area, increase in population, types of industries, existing retail outlets, density and nature of traffic, shifting of retail trade area, relation of rent to estimated sales, accessibility, parking facilities, filling stations, conveniences.

Signs: Legibility area, lines of vision for pedestrians and motorists, legibility.

Open display: Maximum display space and sensory contact between shopper and merchandise.

Visibility: View of store interior from street. Maximum extension of store parallel to lines of street traffic. No structural obstructions in plate glass fronts. Selling space open to view. Adequate lighting especially in back of store. Utilization of daylight. Light-reflecting surfaces. Reflections in plate glass. Prevention of steaming and frosting.

Display facilities: Subordinate to merchandise. Display levels determined by lines of vision, nature of merchandise and ease of handling. Equipment easily moved, not obstructive to view of store; locate to guide the shopper into the store and to control circulation in selling space. Colors to focus attention on merchandise. Neon signs. Protection of merchandise from sunlight and heat.

Access and store circulation: Store on street level. Remove access from lines of dense traffic. No cross traffic. Ample aisles.

Self service: Location of wrapping and counting counters. Table space for shoppers.

Departmentizing: Location of demand and impulse goods to control circulation. The shopper should traverse each aisle.

Size and shape of selling space: Compactness; not too deep.

Conveniences: Toilets, lavatories, rest rooms, drinking fountains, telephone service, lockers.

Construction: Few supports, ease of change, salvage value. Materials fire-resistant, wear-resistant, nonabsorbent, verminproof, easily replaced and repaired.

Mechanical equipment: Ventilation, heating, air conditioning, cooling, dust prevention, burglar alarm and protection at night. Fire alarm and sprinklers. Dumbwaiters. Garage equipment.

Lighting of surroundings and signs: Indication of approach and store. Lighting of parking space. Automatic time switches and control.

Window lighting: Equipment to overcome reflections in plate glass. Neighborhood lighting level. Colored light. Automatic control. Light sources concealed. Equipment determined by dimensions of window and nature of merchandise. Flexibility and provision for increase in intensity. Ventilation. Footlights and spotlights. Provision for built-in equipment.

Store lighting: Gradient between bright daylight and store interior. Relation to window lighting. Recommended minimum 10 to 15 foot-candle. Illumination of sections of selling space where merchandise is displayed and sold. Showcase and wall case lighting. Protection of merchandise from heat. Daylighting equipment for color matching and identification.

REFERENCES

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Domestic Commerce, issued by the Bureau of Foreign and Domestic Commerce, United States Department of Commerce.

Distribution Cost Studies, issued by Bureau of Foreign and Domestic Commerce, United States Department of Commerce.

Contemporary Art Applied to the Store and Its Display, by Frederick Kiesler, Brentano, New York.

Better Grocery Stores, published by The Progressive Grocer, New York.

National Grocers Bulletin, published by National Association of Retail Grocers, St. Paul, Minn.

System, published by McGraw-Hill, New York.

Plans for model stores have been prepared by the following associations and wholesalers:

National Retail Hardware Ass'n, Indianapolis, Ind.

Southern California Retail Grocers Ass'n, Los Angeles, Calif.

Wholesale Dry Goods Institute, New York.

National Association of Retail Grocers, St. Paul, Minn.

The Merchandising Research Division of the Bureau of Foreign and Domestic Commerce, United States Department of Commerce.

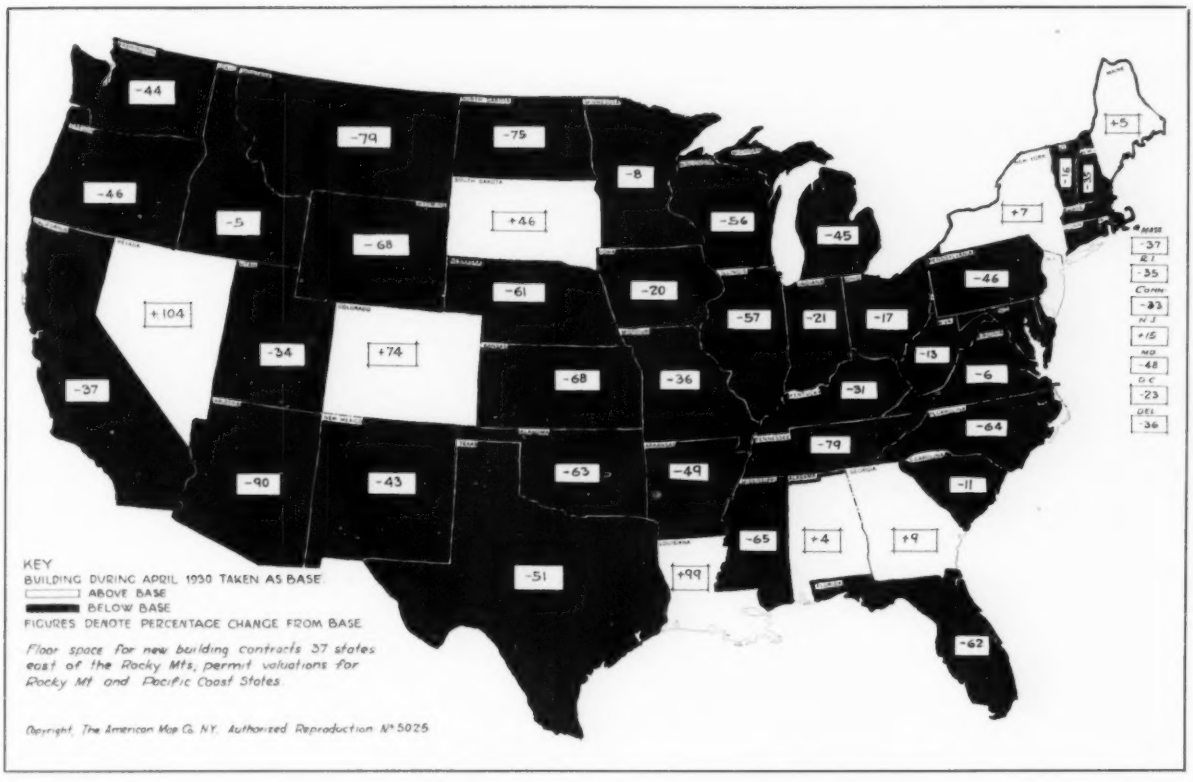
Sprague, Warner & Company, Chicago, Ill.

Francis H. Leggett & Co., New York.

The Westinghouse Lamp Company, Bloomfield, N. J.

Independent Grocers' Alliance, Chicago, Ill.

Literature on store arrangement, based on research, is available from manufacturers of store equipment.



The April building map showed seven states east of the Rocky Mountains where contracts on a floor space basis were larger than in April, 1930: Maine, New York, New Jersey, Georgia, Alabama, Louisiana, and South Dakota. In addition two states in the Rocky Mountain District, based upon partial data, showed April permit valuations above April of last year. From the standpoint of number of states to show improvement in contracts the April map was more favorable than the March map which showed only three states east of the Rockies with floor space totals higher than in March, 1930.

BUILDING TRENDS AND OUTLOOK

ECONOMICS OF SMALL STORE CONSTRUCTION

By L. Seth Schnitman

Although the construction of stores, both single and multi-storied, reached greatest expansion in the spring of 1929, the year 1928 showed a larger annual total than any other year on record. On the basis of contract valuation 1928 showed a construction volume almost twice as large as that reported during 1930; while on a floor space basis new store construction undertaken in 1928 was considerably in excess of twice the floor space volume shown for 1930. In either instance, however, 1930 was lower than any other year since at least 1925, when comparable records first became available.

During 1928 department store undertakings bulked large in the year's total for new store construction. Deducting the effect of this factor 1929 will doubtless stand as the year of greatest importance in the construction of single-story or "taxpayer" stores.

Store construction usually reaches its peak at or about the peak of commercial activity. The cycle of store construction, which started its downward phase when the business decline set in during 1929, was no exception to this rule.

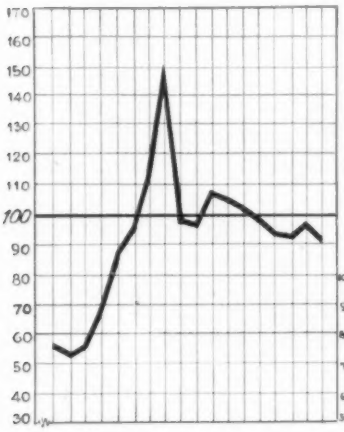
At this time when vacancies in "taxpayer" types are particularly pronounced the burden of taxation, difficult enough in times of normal commercial activity, is indeed an additional hardship to the landlord when the only fixed improvements upon the land are not bearing revenue.

Obviously, among the motives behind store construction, profit is foremost—profit on land, on improvements, on total investment. To provide means for earning carrying charges many have regarded the "taxpayer" as an effective tool. It has, in fact, af-

(Continued on page 84 advertising section)

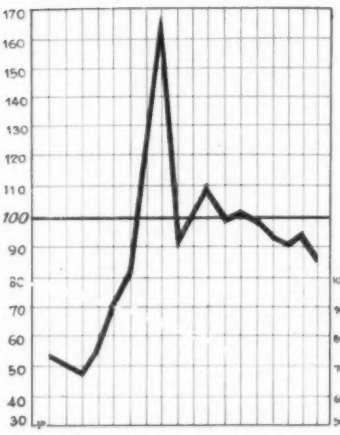
WHOLESALE PRICES FOR BUILDING MATERIALS

1926 Monthly Average = 100



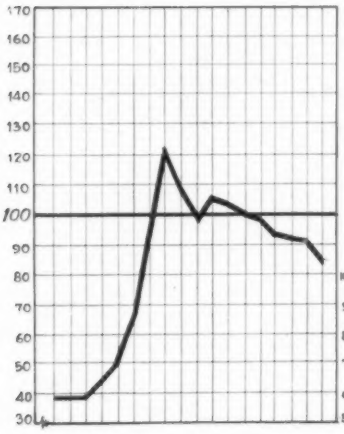
GENERAL INDEX

No signs of stability in building material prices are yet definitely manifest.



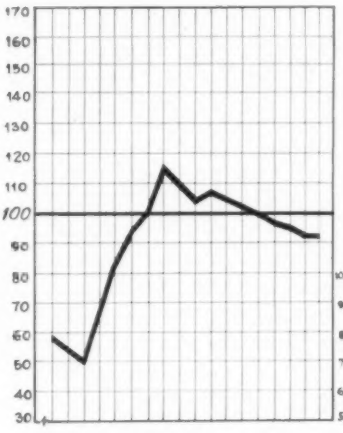
LUMBER

Further declines in lumber prices are not improbable. Prevailing prices are still substantially above pre-war levels.



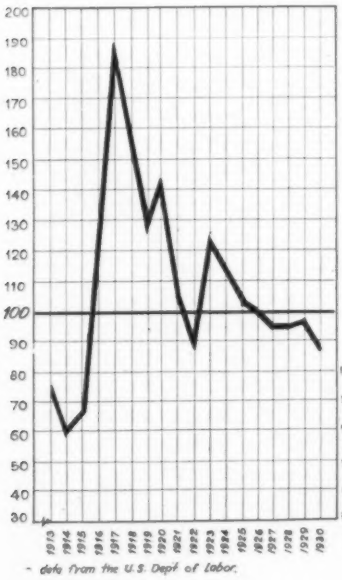
BRICK

That prices can stabilize at current levels is doubtful. Current prices are twice as high as those prevailing in 1913. Local building conditions will largely determine future trends.



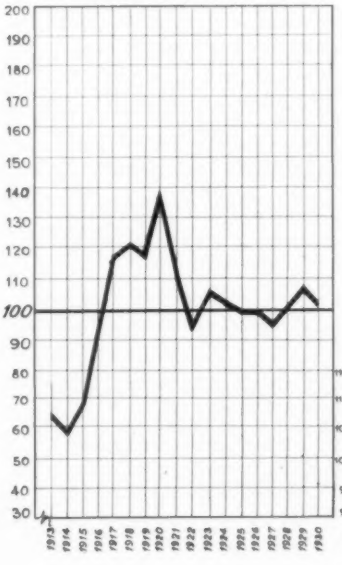
CEMENT

Probable further price declines appear reasonable. Mill stocks are more than 20 percent of total indicated annual consumption. Industry is currently operating at only about 35 percent of capacity.



STRUCTURAL STEEL

Weakness in prices for certain finished steel products, notably sheets, may soon undermine recent strength in structural steel prices.



OTHER MATERIALS

Further declines appear imminent in such types of building materials as are still greatly above pre-war levels.

- data from the U.S. Dept of Labor.

WITH A BRIGHT AIRPLANE BEACON *atop it, the Ritz-Carlton is an Atlantic City landmark. This fine hotel, like so many modern hostelries, paints with Barreled Sunlight for lasting beauty.*

Another famous Hotel . . .

The RITZ-CARLTON *of Atlantic City*

uses it for interiors of lasting beauty

AS one would naturally conclude from the distinguished character of the Ritz-Carlton's architectural design, its interiors are thoroughly charming. Appointments are modern, furnishings luxurious, decorations handsome.

In the Ritz-Carlton—as in hundreds of other fine buildings—interiors of lasting beauty and cleanliness are achieved by painting with Barreled Sunlight—in lustrous white and pleasing tints. Satin-smooth, with a soft lustre, a rich depth, Barreled Sunlight is a handsome finish. Stubbornly dirt resistant, washable as tile, it is decidedly practical; contributing immeasurably to the immaculate cleanliness, the long lasting beauty of painted surfaces.

See our catalogue in Sweet's, and for your own files let us send you our booklet, "For Interiors of Lasting Beauty and Cleanliness," which describes in greater detail the characteristics of Barreled Sunlight.

U. S. Gutta Percha Paint Co., 22F Dudley Street, Providence, R. I. Branches or distributors in all principal cities. (For Pacific Coast, W. P. Fuller & Co.)

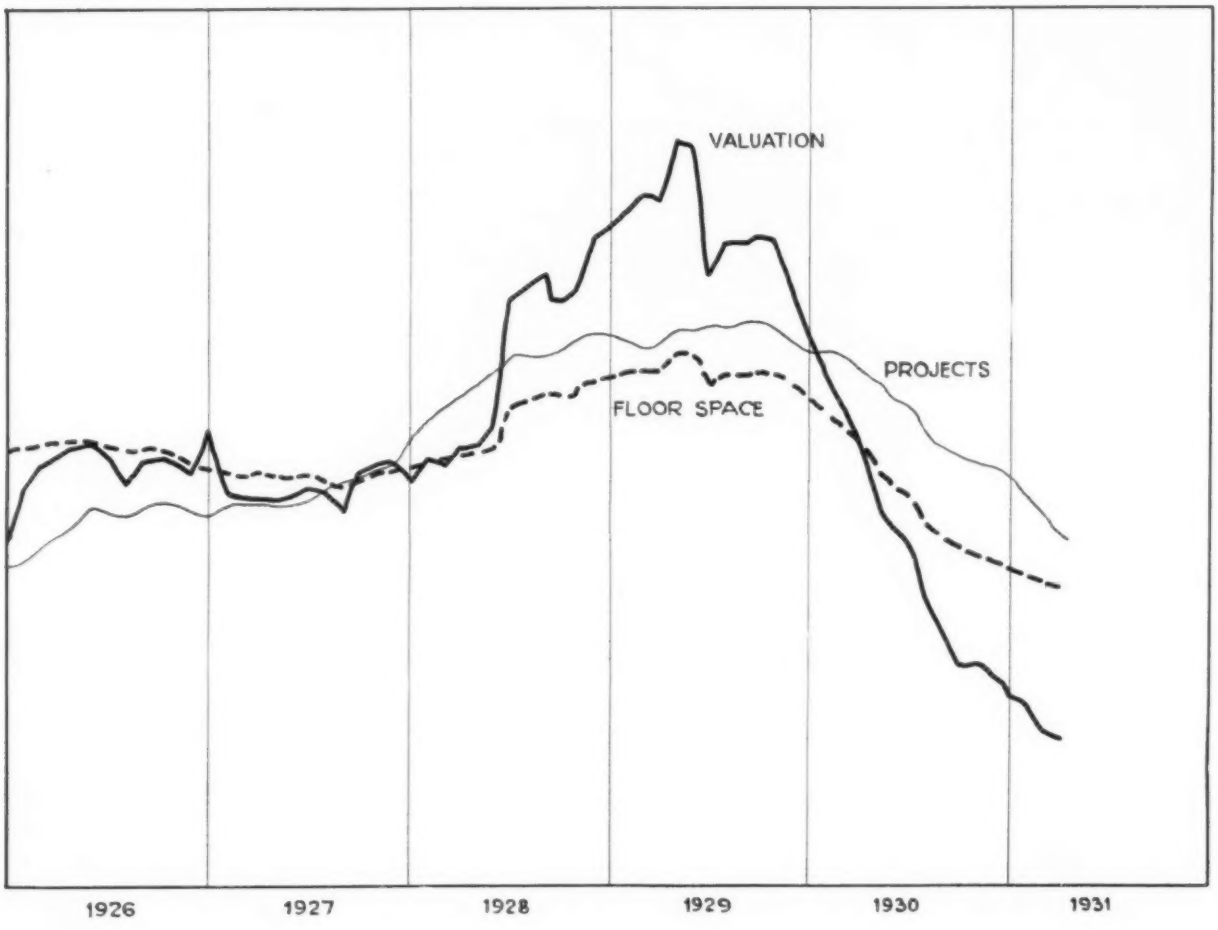
Full Gloss, Semi-Gloss and Flat. Drums and cans. Easy to tint with colors in oil.

Barreled Sunlight

Reg. U. S. Pat. Off.

TREND OF STORE CONSTRUCTION: 37 EASTERN STATES

(Based on contract award data of F. W. Dodge Corporation)



Although the Spring of 1929 marked the peak of store construction, the year 1928 showed the largest annual total on record. Since 1929 the trend of store construction has been downward. No present signs of a turn for the better are apparent, although the rate of decline seems to be somewhat arrested.

(*Continued from page 515 editorial section*)

forded speculative profits and good investment returns, but at what price! In the process it has entailed increased assessments, higher taxes, larger fixed or carrying charges, such as interest, depreciation, insurance, repairs, obsolescence. Economic conditions have forced vacancies so that now carrying charges on these properties are more burdensome than those previously obtaining with respect to the land in its native state.

For the most part "taxpayers" have been of the marginal type—*marginal* in the sense that they provided store space to fill a seeming demand. Erected on the outer fringes of business districts, when general business was good and becoming better, these stores were largely occupied by marginal merchants. The story of business mortality revealed in the latest figures on commercial failures bears mute evidence to the terrific toll which business incompetence has exacted among these merchants. Erstwhile profit-margins have turned to deficits and the "taxpayers" have become depopulated.

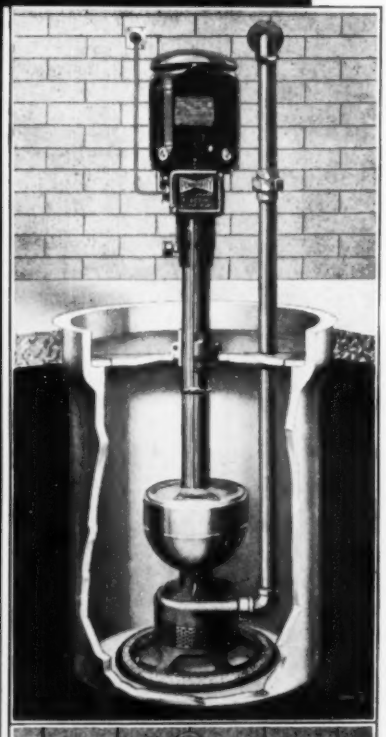
There can now be little question that the year 1931 will show further large retrenchment in new store construction. The indicated decline from 1930 in contract values will likely approximate 50 per cent. Such is the aftermath of building excesses.

In the past small store construction has been planned largely by the carpenter or mason builder without proper architectural direction and guidance, without proper regard for the economics of construction or general business and too often with only little respect for other considerations except the temporary satisfaction of a craving for speculative profit.

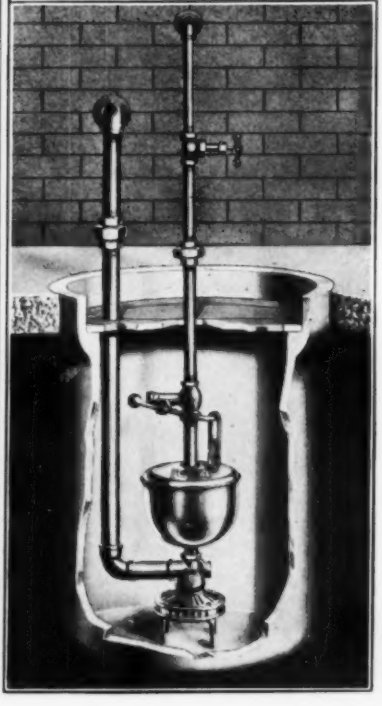
If the present business depression has shown the futility of the nominal escape from taxation afforded by the so-called "taxpayer" then the next wave of commercial activity should produce a nearer approach to fundamentals so far as store construction goes than has hitherto been attained. In this approach the architect may be expected to play an increasingly important part.

RUST PROOF

COPPER AND BRONZE THROUGHOUT



PENBERTHY AUTOMATIC ELECTRIC SUMP PUMP



PENBERTHY AUTOMATIC CELLAR DRAINER (Water Operated)

PENBERTHY PRODUCTS

THE architect need not be told the many advantages of using copper and bronze in the construction of equipment for the removal of seepage water from basements, elevator sumps, piping tunnels, scale pits, etc.

Penberthy Automatic Electric Sump Pumps and Automatic (water operated) Cellar Drainers are built of copper and bronze throughout . . they cannot rust.

The design and workmanship of Penberthy Pumps are as outstanding as the quality of the materials used in them. Consequently, these pumps are trouble-proof as well as rust-proof.

There is a type and size of Penberthy Pump for every purpose. Sump covers for both electric and water operated units can now be supplied at slightly additional cost. Penberthy Pumps are stocked by leading jobbers everywhere.

PENBERTHY INJECTOR COMPANY

Established in 1886 — DETROIT — Canadian Plant Windsor, Ont.

PENBERTHY PUMPS REMOVE SEEPAGE WATER

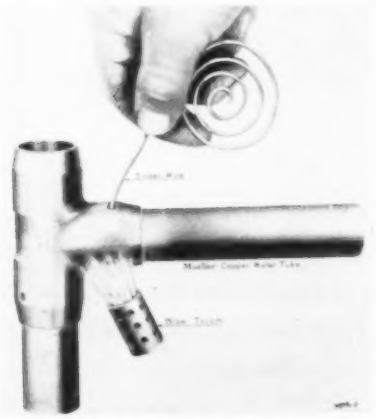
NEW DEVICES FOR HOUSEHOLD USE

By GAYNE T. K. NORTON

STREAMLINE FITTINGS

Mueller Brass Co.

A threadless fitting designed to make a conveniently soldered connection to copper water tube for plumbing and heating lines. Connections are made by application of solder wire fed in through openings in the fitting by use of a gasoline torch. Pipe openings are machined to close tolerances. Copper tube, when inserted, fits snugly against a shoulder in the fitting. This shoulder is the same thickness as the tube wall. Drilling location spots, on the outside of the fitting, are placed immediately above the solder feed channel so that when solder is fed in after heating it is evenly distributed in all directions by capillary attraction. Tapered ends of fitting hasten cooling of solder and form a solder gate.



Advantages: Joints so made are stronger than the tube itself. Continuous, uninterrupted waterway keeps flow resistance to a minimum. No irregularities to cause turbulence. Majority of fittings furnished with solder feed holes drilled. Cost in average residential buildings no more than a galvanized iron installation. Rustproof. Light in weight. Fittings require less space and can be installed close to walls and ceilings since no room is required for operating a pipe wrench. Fittings available with one outlet threaded for use with existing pipe systems. Connections in inaccessible places made with little difficulty. Many connections of tubing may be made on floor or bench. Tube comes in 20-foot lengths, "standard" 200 lb. operating pressure, "extra heavy" 500 lb. operating pressure and "extra heavy soft temper" 300 lb. operating pressure recommended for repair, replacement or new work where bends are necessary.

TUB HANGER

William B. Lucke

Designed to act as waterseal between any wall and the edges of a built-in tub or shower receptor, also between front bottom flange of tub or receptor and floor. Intended further to prevent tub from settling with building and pulling away from plaster or tile. Consists of a galvanized steel trough with a wide upper strip, perforated, to form plaster base or tile backup. After tub is set hanger is installed and the trough filled with a leak-proof filler. Hanger is attached to studs; it is adjustable from 4 to 6 feet in length and from 30" to 33" and 33" to 36" in width; weighs 30 lb. Tested to support 5000 lb. Can be used with or without bottom strip. Styles made for all tubs including glass-enclosed and sunken.

TEWS FLUSH VALVE

Electro Flushing and Manufacturing Co.

A solenoid with movable plunger constitutes operating mechanism. Plunger carries at lower end a tapered valve which closes discharge port when plunger is at rest. Pressing electric button energizes magnet, lifting plunger. This permits water in upper valve chamber to escape through discharge port below plunger seat. Plunger travels upward as pressure in upper chamber is released, allowing water at line pressure to flow into bowl for flushing. While this takes place, a proportion of the amount of water passes through a self-scouring, horizontal port leading into upper chamber. As soon as sufficient water has entered upper chamber to equalize the pressure with that of the supply, plunger seats itself by gravity and valve is again ready for operation.

Advantages: Valve will flush toilet again as soon as flushing operation is completed. Permits bowl to be roughed in close to wall adding to usable floor space. Can be installed in wall immediately back of bowl, lower than bowl, or at a distance. Valve performs silently. No tank required. Top can be removed without disturbing electrical connection. Has wide range of working pressure. Operates on regular electric service. Durable, simple, easily installed and priced moderately.

REMOTE HEATER CONTROL

Savutime Devices, Inc.

Lights gas flame under water heater by pressing a switch located in bath, kitchen or laundry. Can be started from switch in bath and shut off from switch in kitchen or laundry, or vice versa. Indicator light in each switch plate. Thermostat controls gas shut-off. Operates on regular electric service; quickly installed.

3-HEAT WATER HEATER

Westinghouse Electric and Manufacturing Co.

Maintains water at any one of 3 temperatures automatically. Snap switch may be turned to "low", "medium" or "high." Control turns current on or off to maintain temperature. Insulated tank covered with metal jacket painted gray. "U" traps in hot and cold water lines, at top of tank, prevent recirculation. Tanks: 20 gal. up.

IN this 96-page book you will find *the first comprehensive line* of Colonial and Early English Hardware. Many architects have, from time to time, ordered hardware of this kind from us. We now present a complete line, confident that it has a unity of construction and purpose of all pieces that cannot be obtained in any other manner. Please write for your copy at once.

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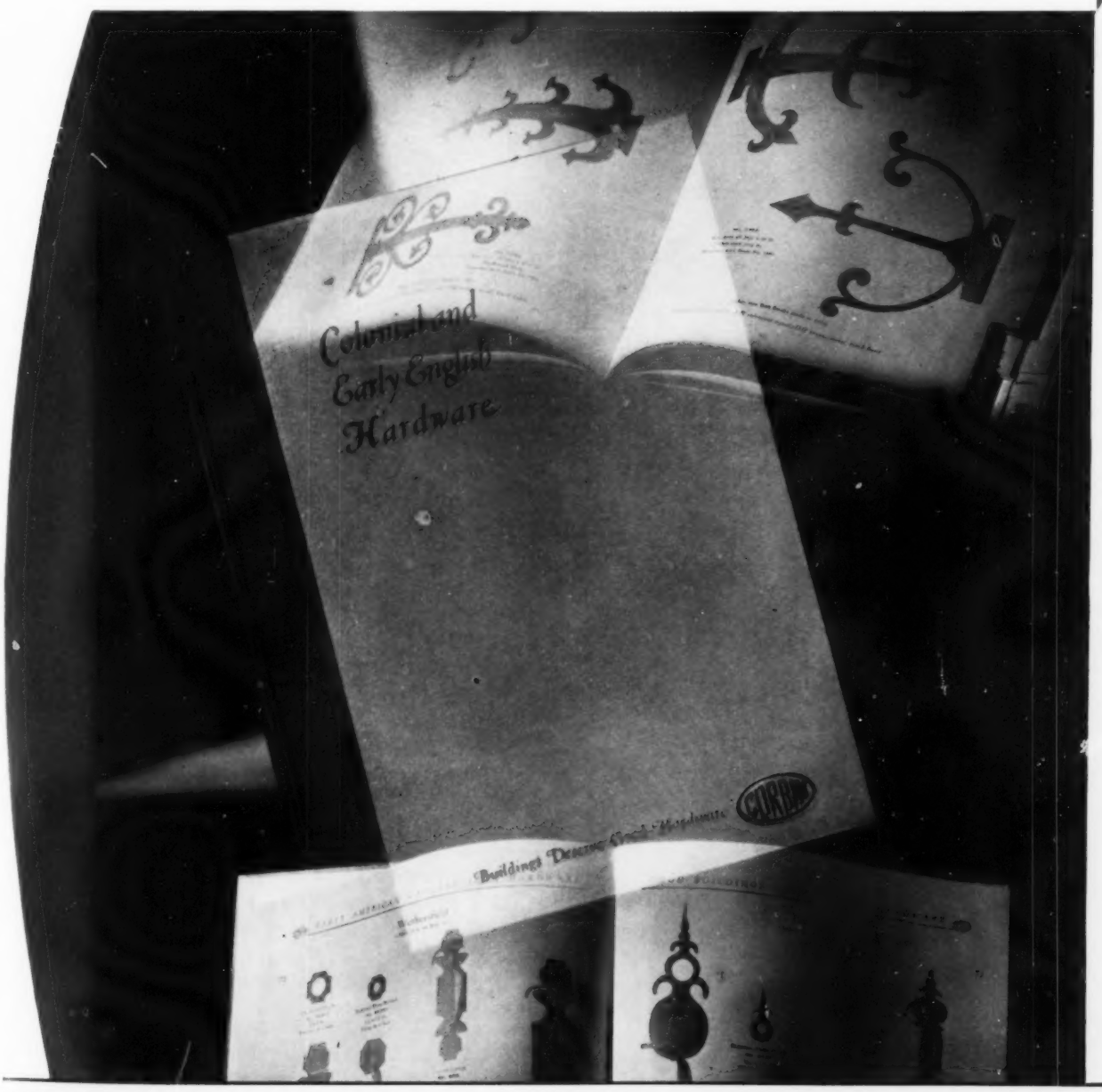
New York Chicago Philadelphia



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FINE BUILDERS' HARDWARE

THE EXTENSIVE variety of characterful designs in which Yale Builders' Hardware is made enables you to select complete and appropriate equipment for any building, from modest dwelling to towering business structure.

For many years the name Yale on builders' hardware has been accepted as an assurance both of permanence and distinction.

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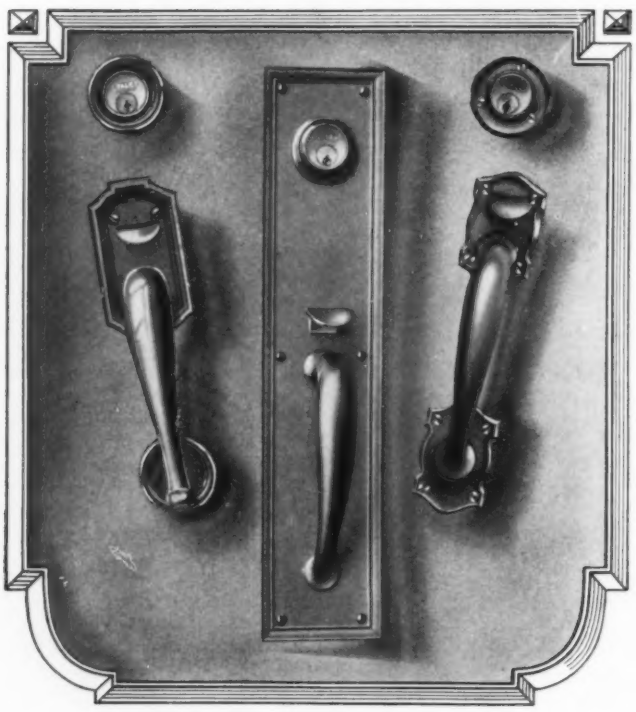

THE YALE & TOWNE MFG. CO.
STAMFORD, CONN.

POP-UP BATH WASTE

Crane Co.

A turn of a china handle set in the overflow causes a weight to act on a lever, forcing outlet plug to pop up from beveled seat; turning handle in opposite direction closes outlet plug. Screwed overflow connection, once installed, need never be disturbed. Overflow can be roughed in and permanently assembled to tub, while operating units can be inserted after other construction is finished, eliminating risk of marring them. Adjustment for variation in heights of tubs provided. Monel pins in brass rod links resist corrosion and wear. Stepping on plug closes it without straining parts. Internal moving parts cannot slip off handle stem. Stopper easily removed for cleaning. Made in 1½″ and 2″ sizes for enameled iron tubs and 2″ size for porcelain tubs. Sanitary, sturdy and simple in construction; installed in half minute. As operating units are removable from the front through waste and overflow openings, this fitting does not require a utility panel.

TOWEL WARMERS

Crane Co.

Designed to connect with hot water system; circulating return. Made in 3- and 4-bar floor models and 3-bar wall pattern; nickel-plated, with air and control valves. Supplies limited amount of warmth to room.

SHOWER RECEPTOR

Fiat Metal Manufacturing Co.

A watertight compartment of white cement and marble chips well tamped and puddled, and cured for 30 days, hand polished, that "rides" the building as it may settle, shrink or vibrate. Floor and walls of unit not integral with structure. Drain included. Nonskid surface. Expanded steel mesh (½″) reinforcing. Galvanized steel flange, perforated to insure bond, thoroughly embedded in receptor body. Shower enclosure walls secured to ½″ extension of this flange. Many sizes; designs suited to room corners. Flat head 4½″ white metal strainer, removable to caulk joint, is flush with floor; 2″ waste connection. No lead pan, special fittings or grouting. Installation on rough floor with finished floor laid to sides recommended.

STEEL KITCHEN CABINETS, CASES

Olean Metal Cabinet Works, Inc.

Permanent, fire-resisting, rodent- and insect-proof, sanitary. Built in units for assembly in any space. Streamline design, narrow margins and narrow stiles and rails. Welded. Semi-concealed hinges. Shelf supports adjustable every half inch. Exposed edges rounded. No sharp corners. Drawers mounted on channel supports, with stops that are readily released. Locks for doors and drawers if desired. Varied shades and colorings; finish coats of automotive lacquer. Counters of Monel metal, steel-covered, linoleum or laminated maple. Many floor plans for kitchens and pantries on which simplest work flow is charted.

Again RUSSWIN enters progressive Newark

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Newark's two new architectural achievements ✣ both equipped with hardware by RUSSWIN

R&E SINCE 1839
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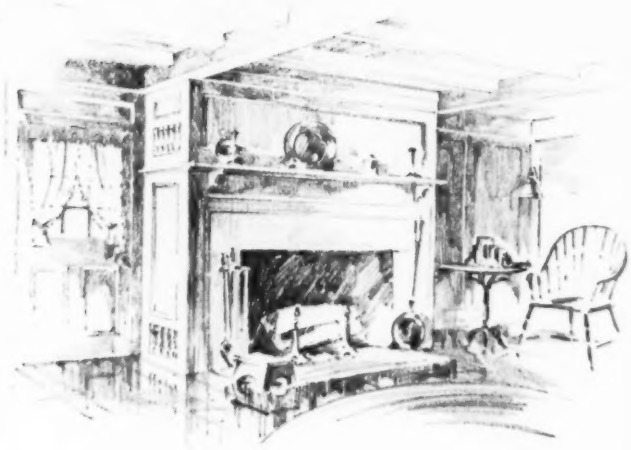
DISTINCTIVE HARDWARE
Hardware that lasts – Base Metals of Bronze or Brass

Two imposing new-comers have towered into the sky-line of this live city. On the left is the largest office building in New Jersey. The other, 17 stories high, is symbolic of the impressive simplicity of the Early American style of architecture. Both are typical of the thriving spirit of Newark. And both are equipped with specially designed RUSSWIN Hardware . . . favored by leading architects and builders because of its matchless workmanship, its enduring base metals of bronze or brass, its distinctive individuality, and the lifetime of trouble-free service that it gives.

For the architect's convenience, RUSSWIN Hardware is illustrated and described in Sweet's Catalogue . . . Pages C-3700; C-3775.

RUSSELL & ERWIN MANUFACTURING COMPANY (THE AMERICAN HARDWARE CORP., SUCCESSOR)
New Britain, Connecticut New York Chicago London

A Heatilator Fireplace



By CARL A. ZIEGLER
Member, American Institute Architects
One of a series by America's foremost authorities

Mr. Ziegler says:

"Everything good in architecture has a basis of utility. The Heatilator adds to the utility of a fireplace, by circulating that heat which is otherwise wasted and by assuring the proper proportions and construction which alone can eliminate the annoyance of smoke. Now that the Heatilator has established itself as a basic means of improvement in fireplace construction, I think it should be generally used.

"A fireplace always becomes the center of family life. It is more a factor of enjoyment than a mere piece of furniture. Regardless of cost, it should be good. One of the things I especially like about the Heatilator is that it adds very little to the cost because it replaces parts and construction that would be needed if the Heatilator were not used. In my Pennsylvania Dutch fireplace I have put the intakes and outlets at the sides, behind special grilles that accord with the design."

Specify Heatilators for all Fireplaces

The use of a Heatilator rarely adds more than $15-$25 to the cost of an ordinary fireplace—and it absolutely assures proper construction, good draft, freedom from smoke, and double heat from same fuel. Extensively advertised in national magazines, Heatilator fireplaces are looked for by people who buy or rent. To be strictly down to date, every house and apartment needs Heatilator-fireplace construction. Catalogued in Sweets. Full particulars on request. The Heatilator Company, 616 East Brighton Avenue, Syracuse, N. Y

Heatilator
Fireplace Unit

SOUND SILENCER

Maxim Silencer Co.

A patented device for quieting rooms on noisy streets. Fan supplies ventilation. Reduces noise level to a point equal with that when all windows are tightly closed; at same time permits free passage of air in or out by merely reversing fan. May be securely fastened in window or built into wall. When installed in wall, double windows, opened only for cleaning, may be used, with consequent advantages as to heat insulation, heat and humidity control. Outside opening is protected with cowls; inside opening, which may be anywhere in room, is finished with a metal grille.

SELF-CLEANING SHOWER HEAD

Speakman Co.

Six tapered plungers, each with 8 tapered slots, operated by lever on side, ½" I. P. inlet, finished in chromium plate. As plungers are moved in or out through face of the shower head, they form long tapered holes. By enlarging or reducing size of holes with lever, bather can enjoy desired shower force and volume. Extending plungers full length flushes the head of all pipe scale and sediment.

THREADED LOCK SETS

Norwalk Lock Co.

Spindles threaded at either end so door knobs may be screwed on to set flush against escutcheons, eliminating washers regardless of door thickness. With knobs screwed up tight on both sides, and held tight with set screws, the installation is rattle-proof and simplified. Escutcheons are offered in many designs and finishes which provide both for knob spindle hole and keyhole in one plate.

IN THE LIGHT OF PAST EXPERIENCE

NEW YORK HOSPITAL—CORNELL MEDICAL COLLEGE ASSOCIATION

Architects: Coolidge, Shepley, Bulfinch & Abbott, Boston, Mass. *Heating & Ventilating Engineers:* Buetkel & Co., Boston, Mass. *General Contractor:* Marc Eidlitz & Son, New York City, *Heating Contractor:* Almirall & Company, New York City, *Plumbing Contractor:* John McMillan Company, New York City.

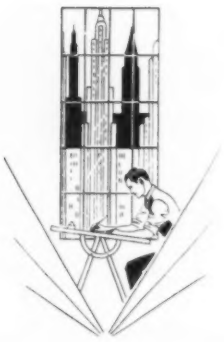
The second great consolidation of a medical school with a hospital in Manhattan during a space of two years, is to be housed in appropriate new buildings between Sixty-eighth and Seventieth Streets, overlooking the East River. This union will be provided with the best plant equipment, technical facilities, and organization of personnel that can be brought together. In the magnificent building that has been planned, the major specifications of piping, so varied and so important in a modern hospital, call for NATIONAL Pipe. Thus precedent grows and accumulated experience enlightens new undertakings. Thus also, among well-informed users, there is increased recognition of—

America's Standard Wrought Pipe

NATIONAL TUBE COMPANY · PITTSBURGH, PA.

Subsidiary of United States Steel Corporation

NATIONAL PIPE



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RUBBER TILE

FOR years, leading architects have specified Kleistone Rubber Tile. They long ago recognized its artistic merits—the unlimited scope of creative expression permitted by its beautiful colorings and wide range of pattern possibilities. Kleistone Rubber Tile is resilient and quiet to walk on, yet its surface hardness and non-fibrous texture make it dirt resistant and long wearing. Its colors and markings are indelible—they go through to the back. It meets the grinding test of tramping feet in public places—hotels, offices, stores, schools, theatres, churches, hospitals, apartments. Architects recommend it for its beauty, economy and durability.

Cut open a piece. See for yourself that the quality and colors are the same through the entire thickness. We shall be pleased to send you a sample.

Write for illustrated circular and complete information . . . Distributors in principal cities.

KLEISTONE RUBBER CO., INC.
710 Cutler Street, Warren, R. I., U. S. A.

KLEISTONE
RUBBER TILE FLOORS

HUMIDIFIERS

Doherty-Brehm Co.

Consists of metal air washer and humidifying cabinet 46″ long, 40″ high, 30″ wide; basement installation. Cool air from floor of rooms drawn into unit through 10″ sheet-metal ducts and centrifugal type blower. A battery of sprays removes, by test, 93% of dust and odors. Sprays play directly upon a heating element connected with house heating plant. Washed air passes over heater absorbing moisture, then through a spun glass filter curtain which removes surplus moisture. Air then returns through ducts to rooms. For homes exceeding 20,000 cu. ft., volume of air circulated per hour from 30,000 to 60,000 cu. ft. Repulsion induction type motor. Over-all dimension for fan and motor 3′ x 3′. Floor registers 12″ x 14″, or equivalent, may be concealed under radiator or behind furniture. Thermostat that controls heating plant also controls moisture evaporated by humidifier. Operation is silent.

Lewis Corp.

Housed in a steel cabinet, visible or concealed, with recirculating and outlet grilles, and insulated tops, assembly consists of a condenser type, low speed motor and disc type fan. Air is drawn into cabinet from bottom and forced through a unit heater of copper tube and fin construction. From heater air is delivered to humidifier which consists of corrugated copper plates within a duct; these start at a horizontal position and curve upward so as to discharge the air vertically into the top portion of the cabinet. Heated water at the top of the plates forms a film flowing downward, meeting the upward flow of heated air. Centrifugal action produced by the air passing over the corrugations washes the air. The 11½ sq. ft. of exposed water surface gives evaporation of a gallon and a half an hour.

Unit has 3 automatic controls: (1) Humitrol for gauging and controlling moisture of delivered air; set for 45% relative humidity at 68° F. (2) Solenoid valve to control water flow to humidifier plates. Connected with humitrol. As more or less humidity is required, humitrol opens or closes the circuit, causing solenoid valve to operate. Power required, 7 watts. Current failure closes valve. (3) Mercoid control with which operation is so linked that the unit may deliver heat with or without humidity, but not humidity without heat; placed in heating supply riser of unit heater to function as a thermostatic control, starting and stopping the motor as the temperature of the heating medium changes; operates on 110 volts. This unit designed for vacuum-steam, hot water—one- or two-pipe systems. First floor hall recommended location; heating efficiency of unit heater permits replacement of hall radiator, its equivalent in radiation is 55 sq. ft. Noiseless aluminum disc fan delivers 150 cu. ft. per minute. Power consumed by motor and solenoid averages less than consumption of 60 watt lamp. Unit will evaporate 12 lb. of water per hour. Motor, protected from dust, requires oiling but once a season. Tubes in heater will withstand pressure of 150 lb.

IT'S HARD TO BELIEVE THAT

the new Matched Fixtures

SELL AT SUCH POPULAR PRICES!

WESTCHESTER Enameled Lavatory K-214-FO. *Also available on pedestal on single leg, and on wall hanger.*

DOWNING Syphon Jet Closet K-5670-PB. *Reverse trap and washdown combinations are also available with regular and elongated bowl.*

IF THERE weren't a cost limit on most of your houses, you'd likely do a good many things that you now steer clear of. With the bathroom, especially. Keeping that important place on the same artistic plane as the rest of the house has been no small job. . . . But now, for interested architects, here's the way out:

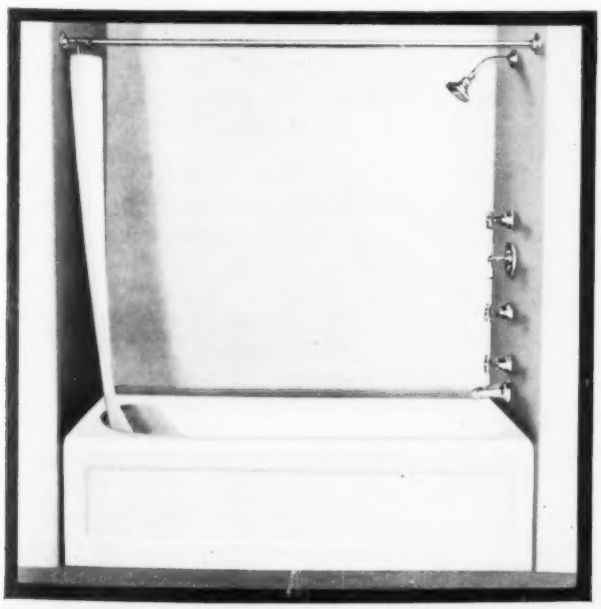
For the first time in plumbing history, modern fixtures that match in every detail can be bought at popular prices! Originated by Kohler, merchandised by Kohler, priced by Kohler within the reach of all your clients, these new Matched Fixtures make the bathroom a *complete decorative unit!*

To see how carefully the new harmonizing idea has been carried out, look at the illustrations on this page. Note the beveled edges, the convenient, wide flat rims, the plain surfaces throughout. Kohler has so planned the designs that other fixtures can be substituted for any of the three in the group, keeping the complete effect. The lavatory, for example, is available both in vitreous china and enameled iron.

If you haven't complete information about this new departure in plumbing fixtures, write now for full details. Kohler showrooms are found in leading cities. Kohler Co. *Founded* 1873. Kohler, Wisconsin. Makers of Kohler Electric Plants. Look for the Kohler trade-mark on each fixture and fitting.

KOHLER OF KOHLER

PLUMBING FIXTURES AND FITTINGS



METROPOLITAN Recess Bath K-40B-7330. *Offered also for either right or left corner with outlet at either end.*

CLARIDGE Vitreous China Lavatory K-4948-FO. *This fixture is also available on pedestal.*

Enduring Strength *Heavy-gauged Metals*

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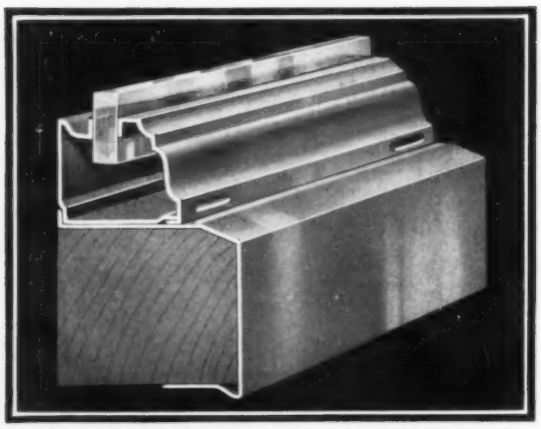
Combined now with today's metals, Brasco offers all the newer effects *at moderate cost*—unequaled values.

Your strict comparison invited. Send for samples—a screw-driver will convince you. Full sized details also.



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Harvey, Illinois

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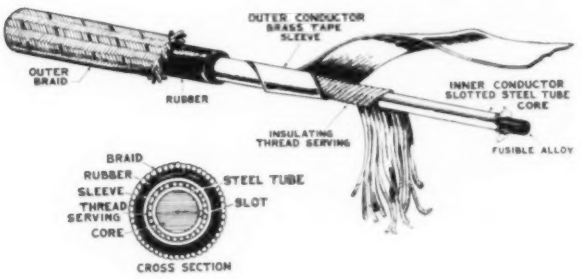
FIRE DETECTOR

Garrison Fire Detecting System, Inc.

A wiring system whereby fire reports itself and which cannot be accidentally or intentionally put out of commission without sounding a trouble signal. Under complete electrical supervision, the thermostatic element is part of the closed circuit. This is a wire covered with a waterproof, acid-fume-proof insulation. Operating on a fixed temperature principle, an alarm is sounded when a temperature of 160° or 350° F, as the case may be, is reached. Easily installed and concealed, this



wire contains a fusible alloy which, when melted, spurts through a slot in a steel core, pushes its way between the strands of an insulator and "short circuits" by coming in contact with the outside conductor. Complete protection provided, or only high hazard spots may be protected as desired. Multicircuit types are available where it is felt necessary to subdivide premises so that the location of the fire can be at once determined by means of annunciator lamps. Direct connection with fire stations where desired.

FINISHING MATERIAL

Formica Insulation Co.

A synthetic material of resin and fibrous sheets of paper or duck. Suitable for table tops, work tops of cabinets, window sills, baseboards, wall paneling, wainscots, fireplace facing. Finishes include black, satin or polished; two marbles, verde antique or Belgian black and gold; three walnuts, mahogany and oak; solid colors red, green, blue, gray, and three *art moderne* patterns. All are fast to light and made in dull or high gloss surface. Non-absorbent; easily cleaned.

Material is chemically inert, will not absorb staining acids or alkalies; weatherproof; will not warp, shrink, crack; immune to alcohol, solvents; cigarettes will not burn it. Strong as cast-iron; slightly elastic; made in variety of forms and sizes.

DUST CHUTE

Ideal Steel Products Co.

Doors in kitchen baseboard open, by foot pressure on lever, into a chute with removable dust container at bottom in basement. Sweepings, contents of cleaners, dust pans, ash trays are swept through door, which closes automatically. All steel construction. No exposed hardware; quickly installed. Wall opening 8″ x 9½″; floor opening 8½″ x 4⅞″.

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THE architects of the already famous Empire-State Building knew that in the proven quarries owned by Indiana Limestone Company they were certain of finding exactly the class of limestone they wanted . . . in unlimited quantity . . . delivered with a service that would measure up in every detail to their requirements.

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Let us send you illustrated literature showing examples of the type of building you are now engaged upon. Address box 1668, Service Bureau, Indiana Limestone Company, Bedford, Indiana. (Executive Offices: Tribune Tower, Chicago.)

Our complete specification manual is printed in Sweet's Vol. A. Page 591 to 616.

Empire-State Building, New York City. Shreve, Lamb & Harmon, Architects. Starrett Brothers & Eken, Inc., Builders. Wm. Bradley & Son. B. A. & G. N. Williams, Inc., James Gillies & Sons, Inc., J. J. Spurr & Sons, Inc., Cut-Stone Contractors.

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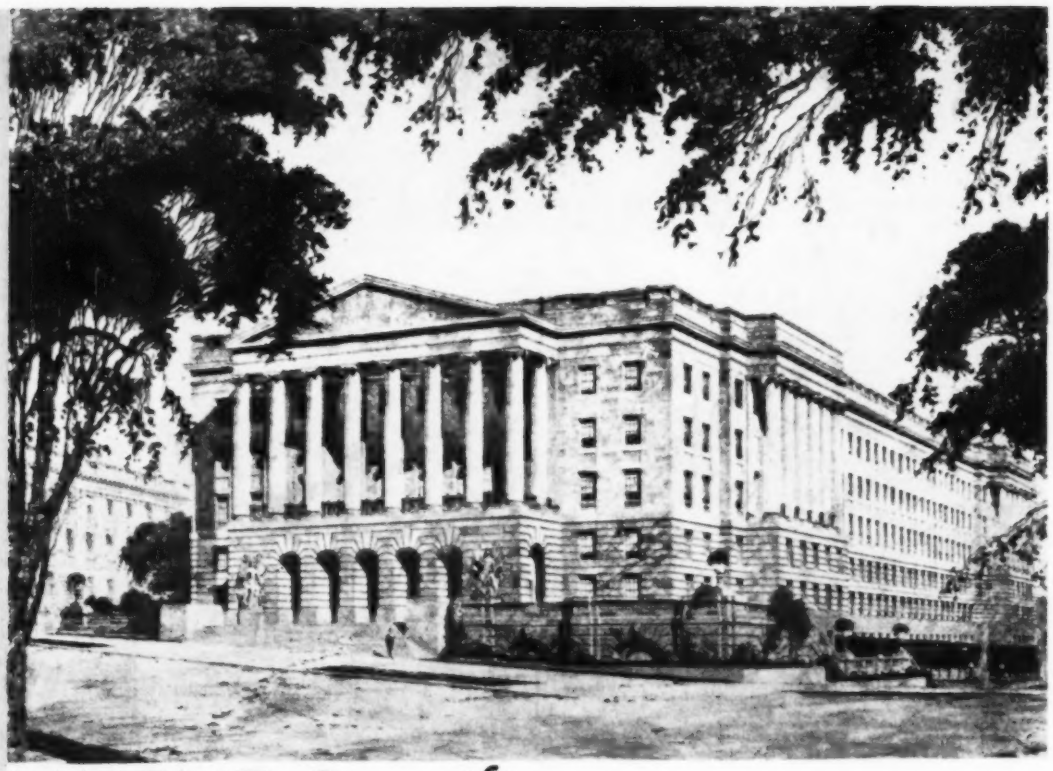

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Vitrolite fused-rock slab material comes in many beautiful colors and various textures for both interior and exterior construction. It will not warp, stain, craze or absorb odors. It is the answer to modernism in both beauty and sanitation.

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FOR OVER A QUARTER CENTURY

GEORGIA MARBLE

THE WARREN G. HARDING MEMORIAL

Henry Hornbostel and Eric Fisher Wood, Archts., E. P. Mellon, Professional Adviser

Dedicated in June by President Hoover

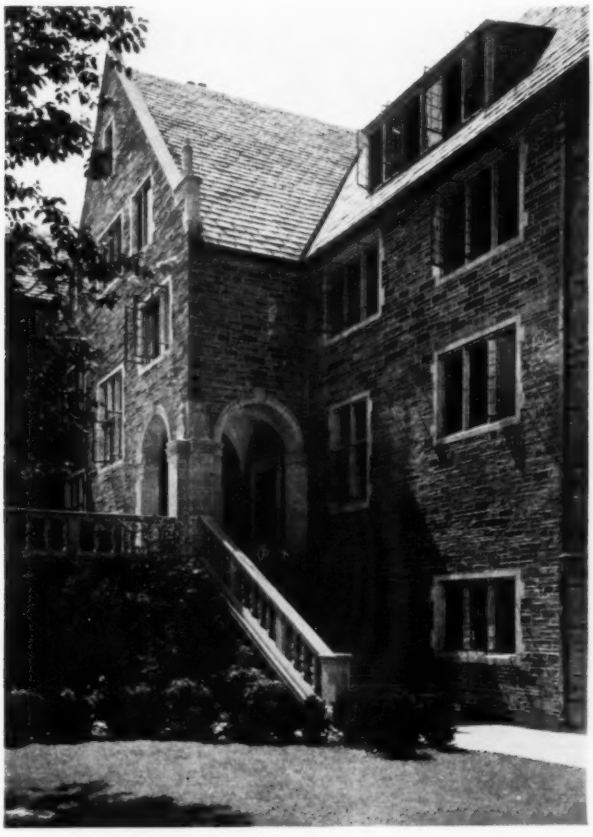
This superb monument of marble at Marion, Ohio, a memorial to the late President Harding, will be dedicated on June 16, 1931 by President Hoover.

National monuments, such as this, are built to stand for all time. For this reason, only the most durable materials were even considered for this structure. The requirements were strict, and the tests to which each material was subjected were severe. Georgia Marble stood out as the wisest choice—considered both for durability and beauty.

THE GEORGIA MARBLE COMPANY · TATE · GEORGIA

1328 Broadway	814 Bona Allen Bldg.	648 Builders' Bldg.	622 Construction Industries Bldg.	1200 Keith Bldg.
NEW YORK	ATLANTA	CHICAGO	DALLAS	CLEVELAND

Within these beautiful walls... *the permanence of* Brass



BALCH HALL, CORNELL UNIVERSITY,
a Revere Brass Pipe installation

FREDERICK L. ACKERMAN,
New York, *Architect*

DALL, HAYDEN & TREAT,
New York, *General Contractor*

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BALCH HALL...the new Women's Dormitory at Cornell University. Finely conceived. With strength of line . . . with the forever modern casement . . . and pleasing pattern of wall and roof. Here, too, is the charm of something built to endure.

Inside as well as out, indestructibility keynotes the materials. The permanence that Revere Brass Pipe lends is there. Its utility will remain undiminished with age. There will be no rust to stain the water or stay its flow.

It may be another Balch Hall for which you are now drawing plans. It may be a home, large and rambling, or small and compact. Or, again, it may be an office building, or a country club.

Always there is the plumbing . . . and for plumbing that endures . . . Revere Brass Pipe.

For further information, write Revere Copper and Brass Incorporated, 230 Park Ave., N. Y. C.

Revere Copper *and* Brass

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EXECUTIVE OFFICES: NEW YORK CITY
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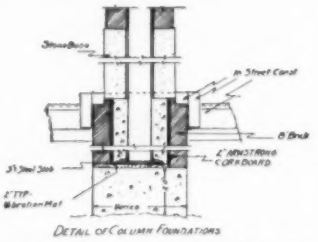
You can solve many Building Problems *with* CORK

A few of them are shown on this and the following page . . . Many other uses are being employed daily by architects

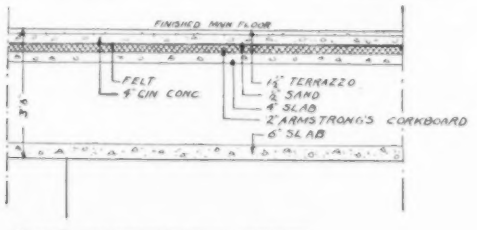
CORK CUSHIONS BUFFALO R. R. TERMINAL

VIBRATION is not admitted to the Buffalo passenger terminal of the New York Central Railroad. Columns and floors over track levels and over streets are sheathed with 2-inch layers of cork. Cork also insulates the passenger concourse and waiting room against outside temperatures. The sketches here show how it was applied.

Wherever moving machinery causes vibration, cork muffles both the vibration and the noise that accompanies it. Whole buildings can be isolated with Armstrong's Vibracork as well as all types of machinery.

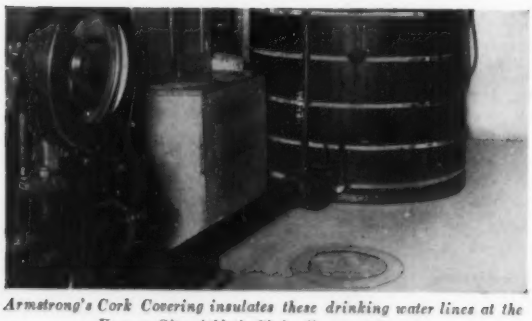


The sketch above shows detail of insulation around columns; that below, detail of floor construction.



FLOOR CONSTRUCTION UNDER PASSENGER BRIDGE

CORK KEEPS DRINKING WATER COOL



Armstrong's Cork Covering insulates these drinking water lines at the Kansas City Athletic Club, Kansas City, Mo.

Cool drinking water, in adequate quantity and of good quality, is imperative in modern buildings.

Guests in hotels, tenants of office buildings and apartments, visitors to public buildings, students in school, and workers in shops, mills, stores, and factories are entitled to easy access to cool, wholesome, palatable water.

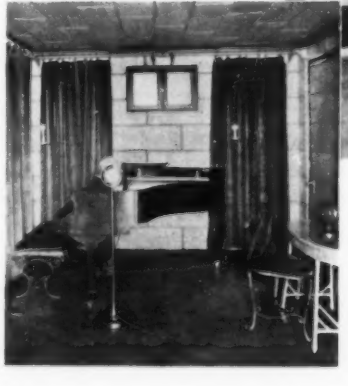
Armstrong's Cork Covering is the ideal insulation for refrigerated drinking water systems and all cold lines. It prevents refrigeration loss, is durable, easily applied, and presents a neat finished appearance.

CORK QUIETS BROADCASTING ROOMS

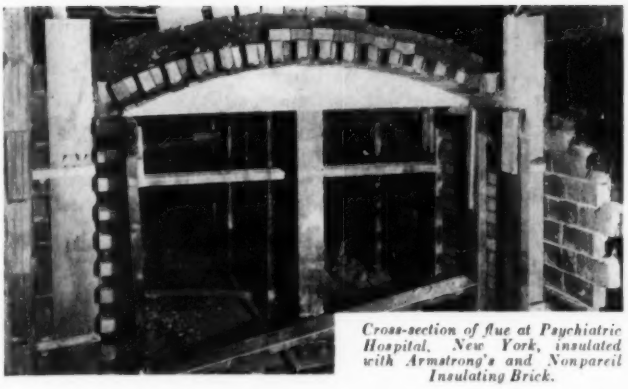
Air-borne sounds yield to the quieting influence of Armstrong's Corkoustic. For instance, radio station WCFL in Chicago is completely quieted by cork panels on the walls and ceilings.

Corkoustic is more than just a practical acoustical treatment. It insulates as well. And it lends itself to many decorative designs. Used either plain or with water paints, Corkoustic is a distinct aid in decoration.

Above: Generator Room of WCFL, where Corkoustic walls and ceilings cut down sound.



Left: Studio of station WCFL, insulated and quieted with Armstrong's Corkoustic. Cork tile quiets the floor, too.



Cross-section of flue at Psychiatric Hospital, New York, insulated with Armstrong's and Nonpareil Insulating Brick.

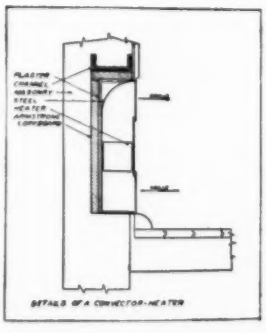
INSULATING BRICK LINE N. Y. HOSPITAL FLUE

New York's Psychiatric Hospital has lined a huge flue and stack with a layer of Nonpareil Insulating Brick, which forms a barrier that keeps heat away from patients' rooms.

Armstrong's and Nonpareil Insulating Brick are widely used for insulation of industrial furnaces. Armstrong's Insulating Brick are recommended for temperatures up to 2500° F.; Nonpareil up to 1600° F. Both Armstrong's and Nonpareil Insulating Brick are machine-sized to insure tight joints. Both brick are structurally strong.

CORKBOARD INSULATES RADIATOR RECESSES

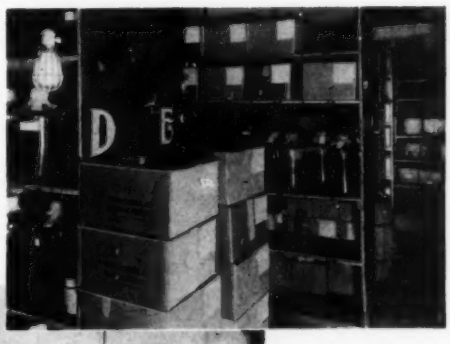
In modern structures radiator recesses are insulated with Armstrong's Corkboard. Walls must be kept thin to save space. But the thinner the walls, the more heat is lost through them — unless its passage is stopped. Heat must be thrown into the room to be effective — not conducted outdoors by brick or steel. Because of its insulating efficiency and durability, architects are choosing Armstrong's Corkboard to perform this new function in modern office buildings throughout the country. Permanent insulating efficiency is assured when Armstrong's Corkboard Insulation is specified. Corkboard not only has a low coefficient of thermal conductivity but also a high resistance to moisture. Structural strength, light weight, and ease of application are added advantages.



This sketch shows how radiator recesses are being insulated with corkboard in modern office buildings.

CORK GUARDS SERUMS AND VACCINES IN LILLY PLANT

Right: These are some of the products made by the Eli Lilly Company and held at constant temperatures by Armstrong's Corkboard Insulation.



Left: Another view of the Eli Lilly laboratory in Indianapolis, showing insulated refrigerator door.

The world-famous Eli Lilly Company of Indianapolis, manufactures serums, vaccines, and other pharmaceutical supplies. Constant temperature is imperative. So Armstrong's Corkboard guards the Eli Lilly plant against temperature changes. Temperature charts show how well this task is accomplished—recording a variance of only two degrees.

• • •

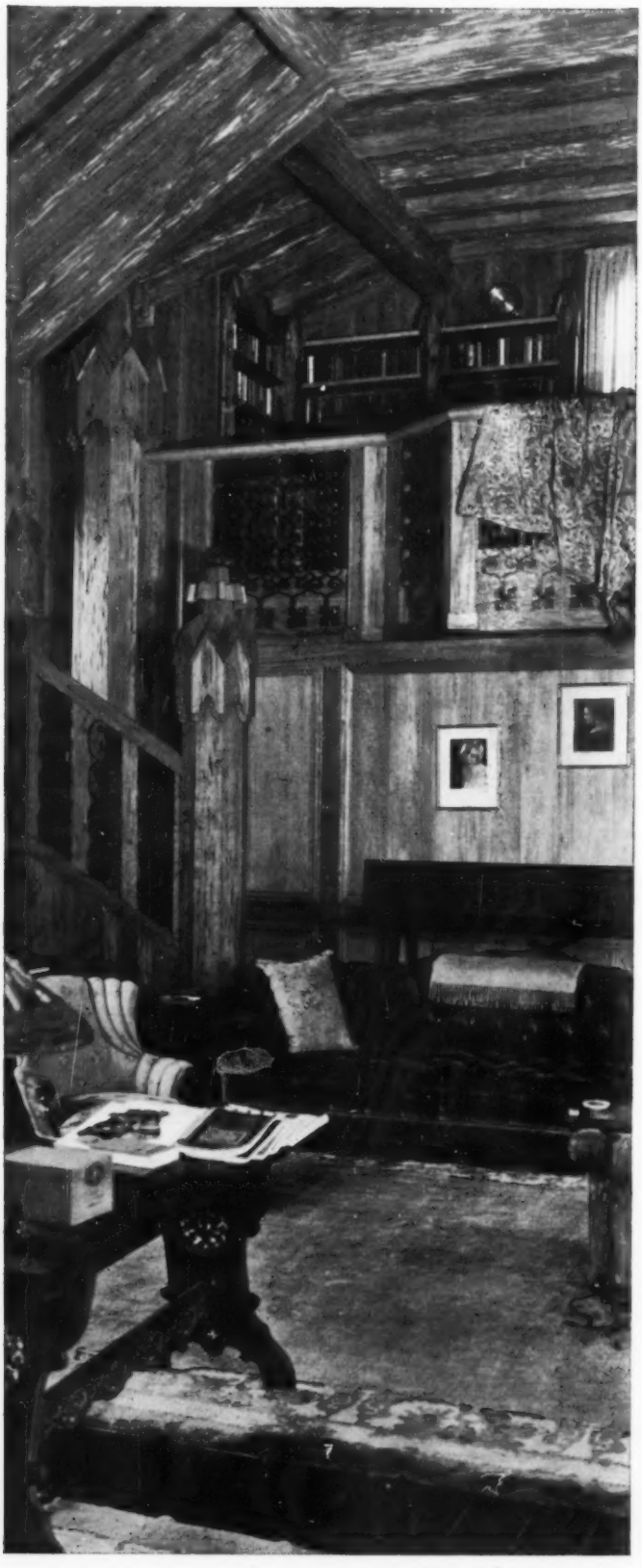
There are many other important and practical uses of cork being employed daily by architects. Many times Armstrong engineers are called in to recommend the proper methods of installation. They would welcome an opportunity to help you.

Bring your files up-to-date with recent copies of bulletins on Armstrong products. We'll gladly send them to you—address Armstrong Cork & Insulation Company, 901 Concord Street, Lancaster, Pennsylvania.

Armstrong's (A) *Product*

Armstrong Cork & Insulation Company

CORKBOARD . . CORK COVERING . . VIBRACORK . . CORKOUSTIC . . INSULATING BRICK



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(FINISH GRADE)

Now its cost is lower than in years!

TO thousands of architects with clients who have been unable to afford the luxury of Tidewater Red Cypress, this announcement should come as welcome news.

Today, and for the first time in years, the price of *Finish* grade* Tidewater Red Cypress is so low that cost can no longer be a factor in considering its use against other kinds of wood.

The reason for this—and strange it may seem in these days of slowed up building—may be laid to the tremendous demand for *Heart* grade Tidewater Red Cypress for exterior use, which enables us to produce and sell *Finish* grade for interior use at remarkably low price.

Used for paneling, doors, windows, beams, baseboards, cupboards—for any kind of woodwork—Tidewater Red Cypress yields all the rare and glowing charm which nature grained into it through untold centuries of growth.

Used just as it comes from the yards, painted, charred, sand-etched or varnished—Tidewater Red Cypress always creates an atmosphere of mellow luxury that neither goes stale nor bows before fad or fashion.

If your dealer is not stocked with Tidewater Red Cypress, he can get it quickly or you can write direct to any of the Association Mills listed below.

This advertisement is published by the following members of the Southern Cypress Manufacturers' Association, Jacksonville, Florida, and New Orleans, Louisiana.

*Every cypress log yields two types of lumber—the *Heart* grade, which is famed for its resistance to rot—and the *Sap* or *Finish* grade, whose exquisite grain always yields richly warm effects wherever and however it is used in the interior of a home.

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F. B. Williams Cypress Co. Ltd., Patterson, La.
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TIDEWATER RED CYPRESS

(COAST TYPE)

THE WOOD ETERNAL

"This gown is soiled, . . . *you must take it back*"

Foresight in Store Planning Will Save Many Merchandise Returns

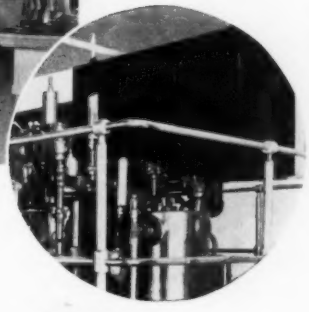
Half a dozen women are lined up at the adjustment window. Coats and dresses are being returned; gloves and stockings. On one was discovered an ugly smudge left by a single speck of soot. On another, a dingy scar made by a film of dust. Sales are cancelled. The merchandise has lost its value. Customer good will has suffered.

Merchants who are putting up new stores today demand buildings that will check these and other leaks in profits. The architect who meets these demands is as careful to specify air filtration as to provide adequate heating, plumbing and lighting.

With American Air Filters, Titche-Goettinger Co., of Dallas, Texas, protects valuable merchandise and insures the comfort of employees and customers. Other prominent retail store users include Macy's; Wanamaker's; Gimbel's; Hudson's; Carson, Pirie & Scott; Filene's; Strawbridge & Clothier; Jos. Horne Co.; Lord & Taylor.

In specifying *American Air Filters,* architects fulfill their two-fold responsibility to owners and users of buildings. They insure an abundant supply of air, thoroughly cleansed of dust, dirt and bacteria. The healthful, invigorating atmosphere contributes to employee health and efficiency. Customers shop without fatigue. Upkeep, cleaning and redecoration costs are cut. Valuable equipment and merchandise are protected.

Our staff of research workers is at your disposal, without obligation. Let us help you determine what types are best suited to your clients' needs. Let us help you plan systems of air filtration that will solve special problems and serve unusually exacting purposes. American Air Filter Co., *Incorporated,* General Offices, 134 Central Avenue, Louisville, Ky. Factories, Louisville, Ky. and Bradford, Pa.



American Air Filters are made by the world's largest manufacturers of air-cleaning equipment. A wide variety of types, adaptable to any kind of building. Invariably reliable and efficient.

AMERICAN AIR FILTERS

CLEAN AIR: THE NEW ARCHITECTURAL RESPONSIBILITY

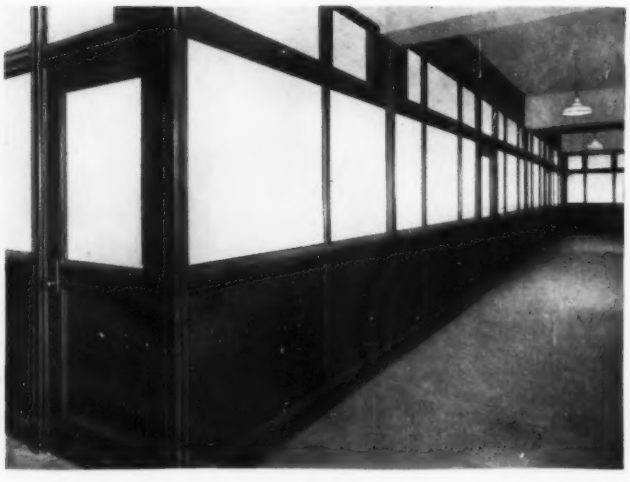
Before You Buy ANY Office Partition, Be Sure Of Its MOVABILITY.....

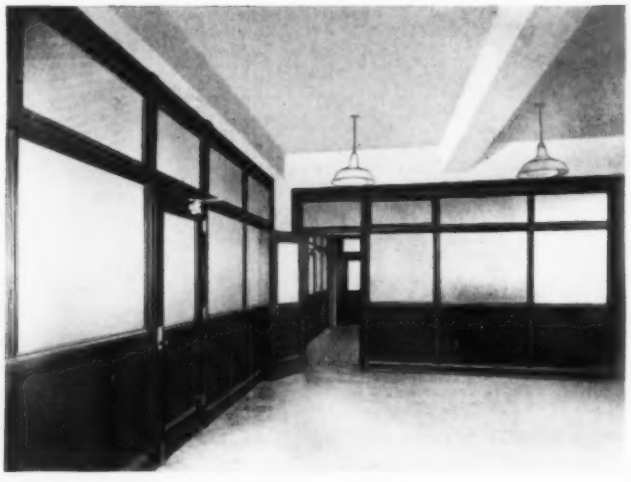
TO merit your consideration, office partitions must be beautiful, dignified, with a character in keeping with the success and progress of your whole project. They must be sound-proof, fire-proof, virtually scratch- and mar-proof. They must be substantial and long-lived. They must afford a privacy and quiet which render employees more efficient and loyal.

Sanymetal Steel Office Partitions have all these requisites.

However, all these qualities must be buttressed and made instantly available by quick movability. Partitions must be ready, upon a moment's notice, to group and regroup themselves—to wheel into new formations at the trumpet call of Necessity-that-will-not-wait.

Sanymetal Steel Office Partitions are instantly responsive to the "trigger release" demands of present-day business. All units are standard and interchangeable. They can be dismantled and reassembled indefinitely. And they are 100% salvageable.





Sanymetal steel office and factory partitions are made in four types for every purse and purpose. Sanymetal also builds steel toilet, shower and dressing compartments, and hospital cubicles. Communicate with Partition Headquarters:

THE SANYMETAL PRODUCTS COMPANY
1704 URBANA ROAD CLEVELAND, OHIO
New York: 536 East 133rd Street
Pittsburgh: Standard Life Bldg.

Sanymetal
Steel Toilet & OFFICE PARTITIONS

Remarkable discovery in woodworking opens whole new field of decoration

Cabinet wood paneling at 1/5 to 1/2 the former cost

FOR LARGE BUILDINGS: *No longer is paneling too costly for the large wall spaces of public buildings. Already, Flexwood has distinguished many—notably the Chicago World's Fair Building, illustrated.*

FOR CENTURIES LIMITED to costly rooms, wood paneling is now, for the first time, practical for both modest homes and very large wall spaces. Through the recent discovery of Flexwood—wood paneling is offered to you in an entirely new form—actually as pliable, as easy to handle and install as canvas.

Oak, Walnut, Mahogany, Lacewood, Prima Vera and other fine cabinet woods are cut into veneers, mounted on fabric, and then, by a special "flexing" process, made so pliable they will round any corner, fit any wall surface.

Think of the wonderful possibilities this introduces! A whole new era in interior design is begun by this remarkable discovery in wood paneling. Every architect or decorator will be interested in Flexwood. Its installed cost is only 1/5 to 1/2 as much as ordinary paneling and it absolutely will not crack, warp, or check.

Find out all about Flexwood. Be sure you have its complete story in your files. On your request, we will be glad to send samples, descriptive literature, and specifications. Or, if you prefer, we will have a representative call. The Flexwood Company, 919 North Michigan Ave., Chicago; the Chrysler Bldg., New York City.

A few of the *Leading Architects* who have specified Flexwood

Holabird and Root, Chicago
Raymond Hood, New York
Philip B. Maher, Chicago
Benjamin H. Marshall, Chicago
Rebori and Wentworth, Chicago
Schultz and Weaver, New York
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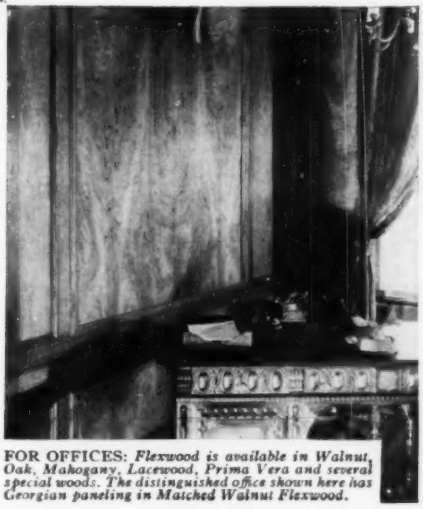
ANY GOOD DECORATOR *can apply Flexwood. It goes up like canvas. Sheets of Flexwood are kept in sequence as they are cut from the log, so that they create a series of matched patterns on the wall.*

FOR HOMES: *With Flexwood, you can specify beautiful paneled interiors for even modest homes. Illustrated is a portion of a distinctive bedroom in natural Mahogany.*

Flexwood

CHOICE CABINET WOODS FOR FINE WOOD PANELING



FOR OFFICES: *Flexwood is available in Walnut, Oak, Mahogany, Lacewood, Prima Vera and several special woods. The distinguished office shown here has Georgian paneling in Matched Walnut Flexwood.*

THE NEW NORMAN SCREENED CASEMENT

—operated entirely from the inside

ONE of the outstanding features of the new Norman Screened Casement is its convenience of operation. A handy sill operator permits the window to be opened or closed easily from the inside without touching the screen. This piece of hardware also serves to hold the casement in any open position by means of a thumbscrew adjustment—and in addition becomes an auxiliary locking device when the window is shut.

All fittings on the new Norman Screened Casement are attached directly to the window frame. At no point has the screen panel itself been cut to accommodate the hardware—which means that the screening arrangement is not only insect-proof but also less liable to damage.

The new Norman Screened Casement is easy to attach and is quickly removable. It is only necessary to slip the screen on or off of two anchor buttons—that's all there is to it! In place, the screen lies perfectly flat against the window frame.

In design and construction the Crittall Norman Screened Casement is simple and sturdy in every detail. The locking handle engages in a beveled strike plate, pulling the sections together snugly—thus insuring wind and weather-tightness.

A complete line of Crittall Norman Screened Casements in standardized sizes is now available. Special-sized Norman Casements with the same screen and hardware arrangement can be supplied on order. The screen frame is offered in steel, finished to match the casement—or in bronze with statuary finish.

We will gladly send you upon request a copy of our folder fully describing the new Norman Screened Casement. Or telephone our nearest representative and he will call and show you a sample.

CRITTALL CASEMENT WINDOW COMPANY
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Stanley Ball Bearing Butts Are Used

THIS imposing group of telephone buildings, dedicated to the service of better communication, are equipped throughout with Stanley Ball Bearing Butts.

These buildings are representative of many of the modern structures which rely on Stanley Ball Bearing Butts to render continuous smooth and trouble-free service.

Stanley Ball Bearings eliminate wear on the joints and thus insure against door closer or lock trouble. For extreme low maintenance cost specify Stanley Ball Bearing Butts.

THE STANLEY WORKS
New Britain, Conn.

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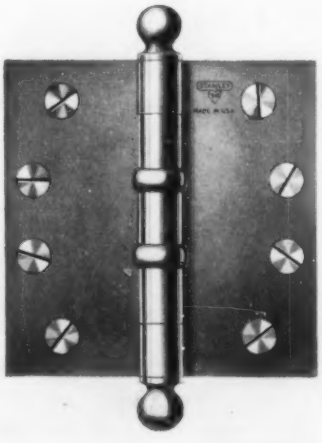
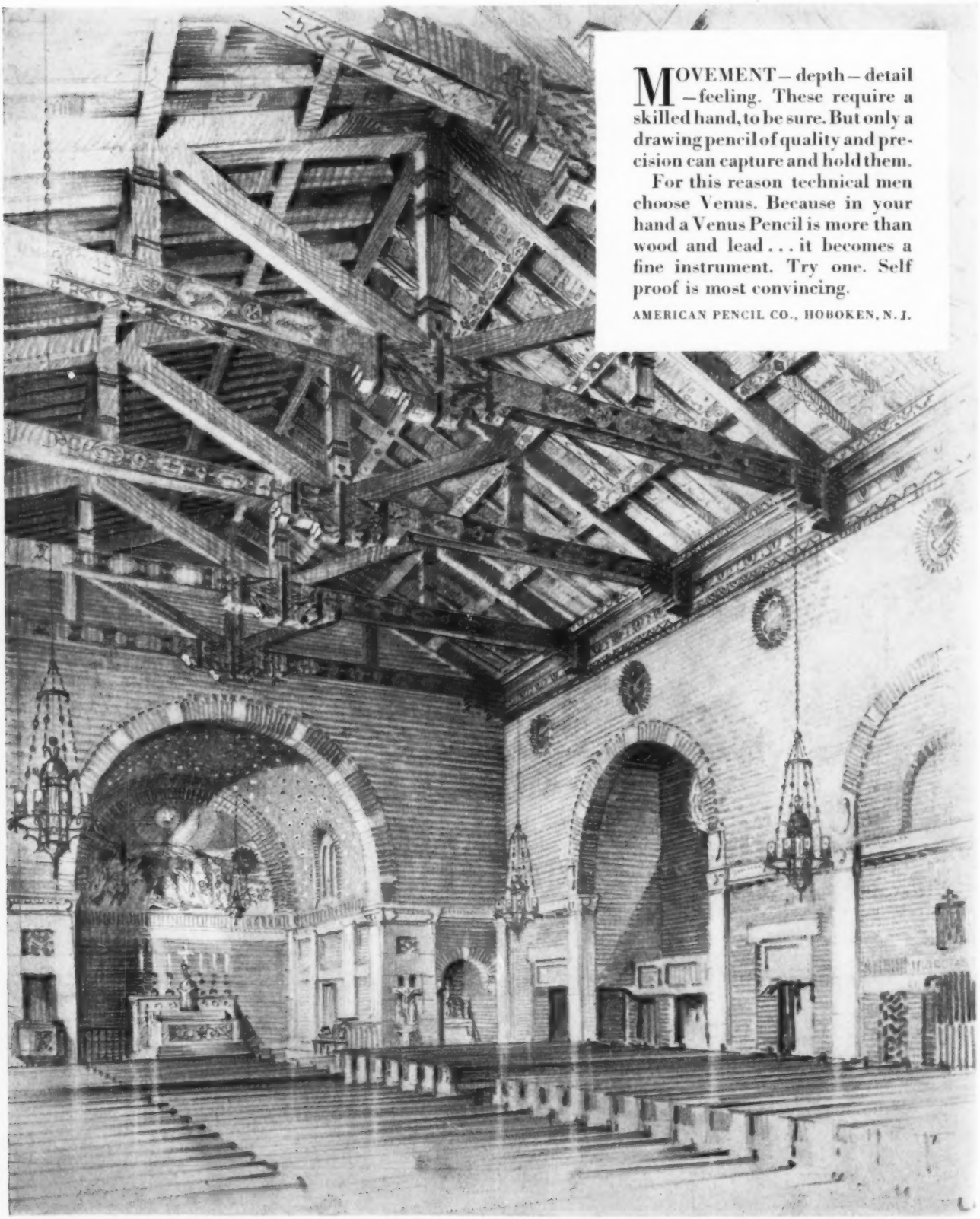


FOR PERSPECTIVE FEELING...



MOVEMENT—depth—detail—feeling. These require a skilled hand, to be sure. But only a drawing pencil of quality and precision can capture and hold them.

For this reason technical men choose Venus. Because in your hand a Venus Pencil is more than wood and lead . . . it becomes a fine instrument. Try one. Self proof is most convincing.

AMERICAN PENCIL CO., HOBOKEN, N. J.

Rendered by Henry Rodberg. Rambusch—Decorators. Henry V. Murphy, Architect.

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the American Ideal

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are the highest development in sheet manufacture. This Company's ideal is not merely to meet competition in quality — but rather to set a standard for competition to meet. It is in this aim that the spirit of progress lives. In producing highest standards for sheet metal today, the AMERICAN ideal plans for even a higher tomorrow.

AMERICAN products are supplied in Blue Annealed, Black and Galvanized Sheets, Sheets for Special Purposes, and Tin and Terne Plates for all construction uses. When maximum rust-resistance is important, specify KEYSTONE Copper Steel—the original copper steel alloy—unexcelled for Galvanized Sheets and for products requiring the greatest degree of enduring service. Send for copy of "Anti-Corrosive Metal" booklet.

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Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif.
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THE floors in the new Board of Trade Building, Chicago, illustrate well the possibilities of Atlas White terrazzo in the modern office building. Here the same striking combination of colors has been carried out in all the terrazzo floors in the building, variety being secured both by changes in the pattern and by omission of one or another of the colors.

Terrazzo floors made with Atlas White portland cement owe their popularity largely to the unusual effects obtained with them and to their lasting beauty. An unlimited range of striking designs and color combinations, harmonizing with any interior or exterior decoration, is always obtainable.

Sharp, clear colors are obtained with white portland cement as with no other. When Atlas White is used for the cement matrix, it brings out in sharp relief

Universal Atlas

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each marble chip and preserves its identity and full color value. Being pure white, Atlas White portland cement insures a clear, true color tone in the matrix itself no matter what pigment is used. Thus any degree of contrast between the matrix and the marble chips may be obtained.

Complete, detailed information on Atlas White terrazzo or on other products made with Atlas White will be promptly furnished on request.

Terrazzo floors in the new Board of Trade Building, Chicago. Holabird & Root, architects; Hegeman-Harris Co., general contractor; John Caretti & Co., terrazzo contractor, all of Chicago.

1. *Terrazzo floor on mezzanine.*
2. *Wide corridor in basement.*
3. *Section of floor in front of elevators in basement.*
4. *Mezzanine, second floor.*
5. *Section of corridor, second floor.*
6. *Section of corridor, third floor.*

Cement Co.
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Where Beauty Demands Permanence

The great buildings of today—monuments of beauty and efficiency—demand permanence of construction to preserve them throughout the ages. The best assurance of this is the short span concrete floor arch reinforced with Wire Fabric. Where such procedure is followed, American Steel & Wire Company Wire Fabric, because of its proved strength and uniformity, is generally specified as standard. Information, including engineering data on Wire Fabric for concrete reinforcement, will be furnished on request.

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Looking from under one... at another

You are standing
in the Gazebo
and looking across
one of the pools
at the rear
of the residence:
from under one
Sheldon Slate Roof
at another.
A restricted view,
but from no point
could you see more
than a very little
of the total of
Sheldon's Slate
used in this
magnificent project,
and of which
we will show you more
and tell you more
next month.

For the moment, we shall add only that Sheldon's Slates perform a work of useful beauty in many features of this project; also that we are at your service to help slate perform this same work in other buildings.

Residence of H. F. Harper, Lansing, Michigan
Architects, Beckett & Akitt, Detroit
Roofers, Eagle Cornice & Roofing Co., Detroit

F.C. SHELDON SLATE CO.
GENERAL OFFICES · GRANVILLE · N·Y·
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For the Relief of Suffering Humanity

THE NEW YORK HOSPITAL
CORNELL MEDICAL COLLEGE BUILDING

Architects
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Boston

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Marc Eidlitz & Son
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THE magnificent institution pictured above, to be completed in 1932, is destined to become world renowned, both as a center for medical research and as a hospital. In design, in construction and in equipment, it will be unsurpassed. The electrical installation will be especially complete. Bryant "Superior Wiring Devices"—including Bryant Hospital Signal Devices—have been selected for use throughout the building . . . by architects, engineers and contractors because experience with Bryant Devices has been such as to justify this selection.

See our catalogue, filed in the four-volume Sweet's for 1931, Vol. D, pages 5867 to 5873 and page 6068

A-631

BRYANT

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Manufactured by
THE BRYANT ELECTRIC COMPANY, BRIDGEPORT, CONN.

MANUFACTURERS OF "SUPERIOR WIRING DEVICES" SINCE 1888-MANUFACTURERS OF HEMCO PRODUCTS

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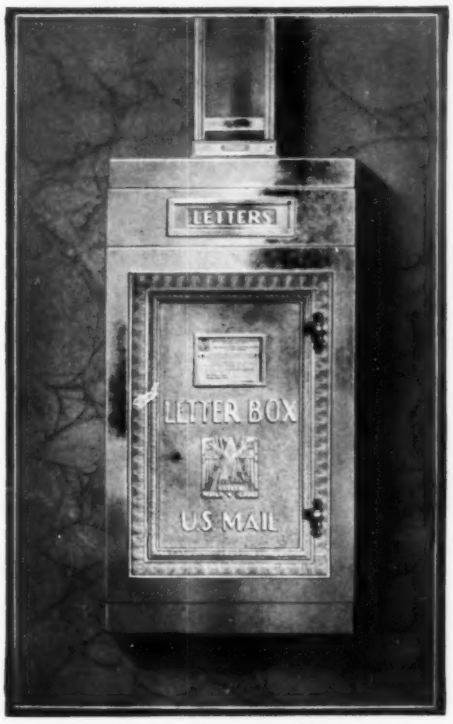
THE CUTLER MAIL CHUTE

The achievement of fifty years' experience in meeting the exacting demands of Post Office and Public use. Manufactured in our own Factory — built, equipped and operated for this purpose exclusively. The only such Factory in the world.

The business is limited and restricted by stringent Postal Regulations, but centered in one establishment it is possible to maintain the organization necessary to give to our customers, the public, and the Post Office Department a quality of work and service satisfactory to them, and to us.



Stock Design 4083
Aluminum

This also justifies the employment of specially designed machinery by which the highest standard of quality is maintained, and the cost of production reduced to the lowest possible level.

Buildings in which large quantities of mail originate are provided with two or more Mail Chutes usually installed in twin form. Recent refinements in the twin construction have reduced the space occupied and greatly improved its appearance.

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CUTLER MAIL CHUTE COMPANY

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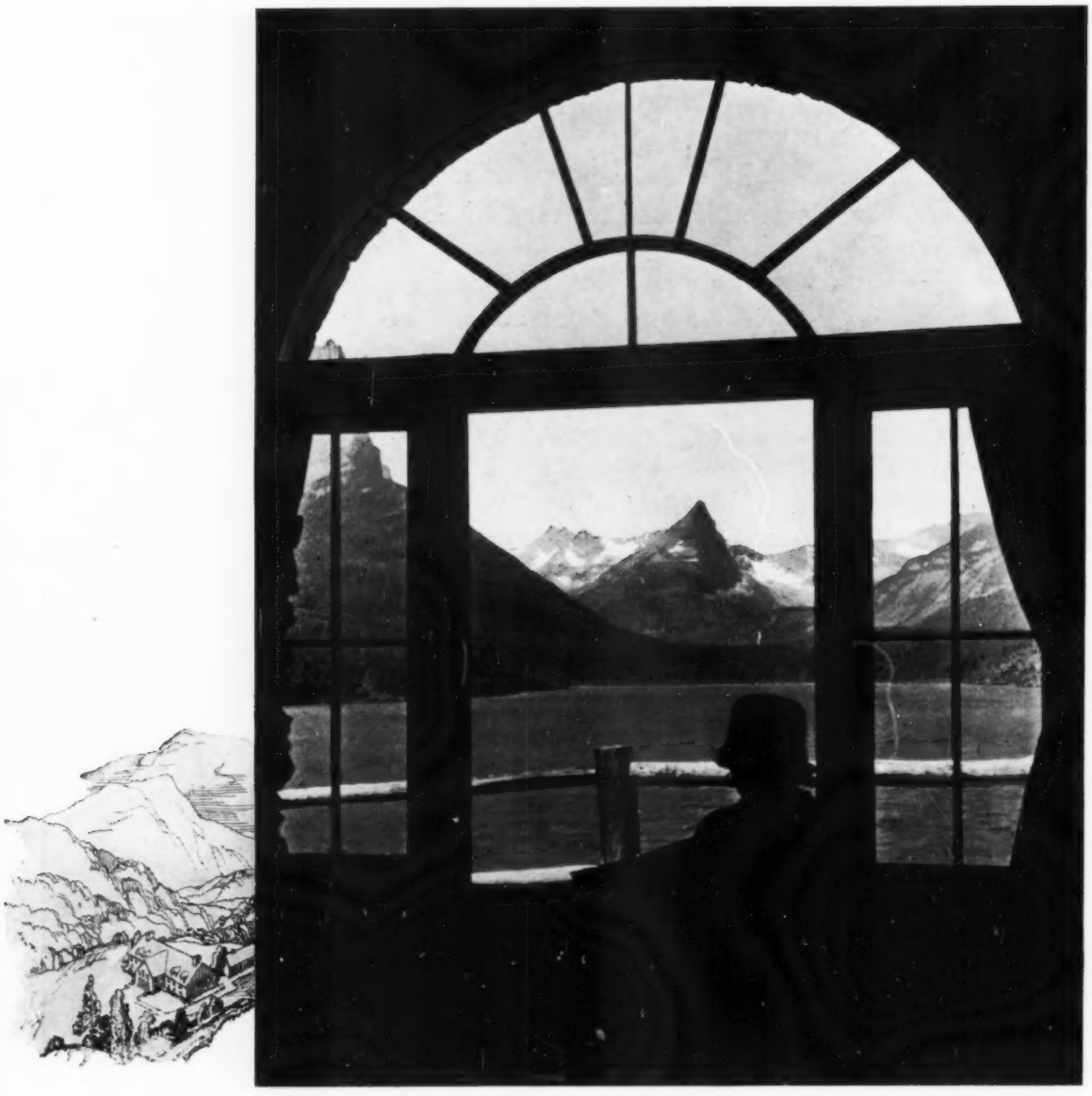

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PENNVERNON Window Glass is unique—in two ways. First, because of its quality. Due to our new process by which Pennvernon is manufactured, it has a new flatness, clearness of vision and brilliancy. A remarkable freedom from flaws and defects. And yet it costs no more than ordinary window glass.

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PENNVERNON
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WINDOW GLASS

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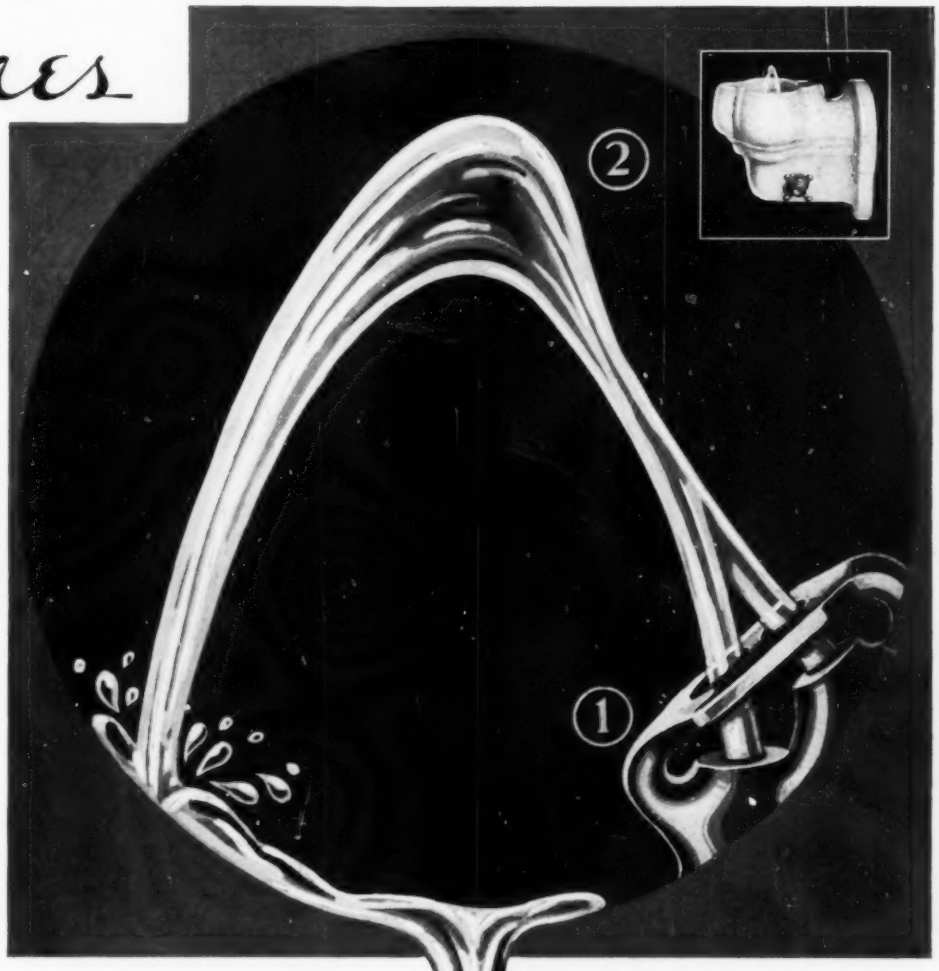

1

Two-Stream Projector

The two-stream projector is a distinctive Halsey Taylor feature! The drinking mound is formed by the converging of two streams and this localized mound guarantees absolute sanitation! Fingers or lips do not come in contact with or contaminate source of supply. Practical, safe, non-squirting too!

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Ideal Drinking Mound

An automatic device maintains a constant height in the drinking stream even though line pressure varies. Stream never too high, never too low—always at convenient drinking height!

MADE, sold and serviced by the largest organization of its kind devoted exclusively to the manufacture of drinking fountains, Halsey Taylor fountains are featured by variety in design as well as scientific construction! We aim to sell a service, not just a fountain, and invite architects to consult our nearest office for advice! The Halsey W. Taylor Co., Warren, Ohio (*offices in principal cities*)

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HALSEY TAYLOR

Drinking Fountains

See Sweet's—Pages D-4985 to D-5000

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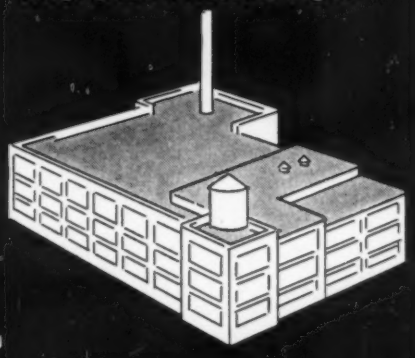
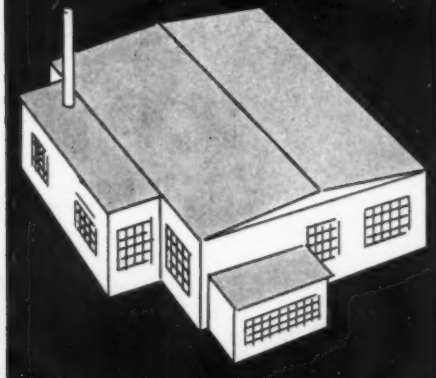
SPECIFY ROOFS TO MEET SERVICE CONDITIONS

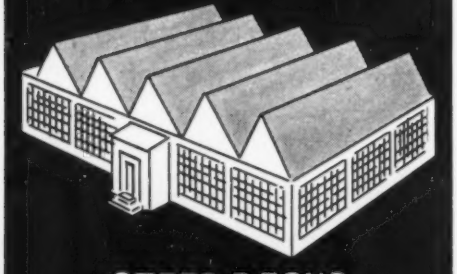
CAREY SPECIFICATIONS INCLUDE ROOFS FOR· ·



FLAT DECKS—



SLOPING DECKS—



STEEP DECKS—
For All Conditions
In All Climates

Carey ROOFINGS

Tar and Gravel . . . . . .
Asbestos or Asphalt . . . . .
Mineral or Smooth Surfaced . .

A ROOF which gives satisfactory, dependable service on a steep pitch area may fail entirely when applied on a dead level deck. A type of built-up roof which gives excellent service in Michigan may prove wholly unsuitable for an identical building in Alabama, Texas or the Orient.

Special care should be exercised in specifying Built-Up Roofs to meet the various service conditions. The two most important factors to be considered are climatic conditions and deck variations.

Only a manufacturer who can furnish Built-Up Roofs of every type can offer unbiased recommendations. Only a roof which is designed for specific conditions can be expected to give the maximum service at the minimum cost. Fifty-eight years of practical roofing experience are back of Carey Built-Up Roofs. They are applied according to rigid specifications by a nation-wide corps of roofing experts, and are bonded for ten or twenty years.

The Carey Specification Book tells exactly what roof to use under given conditions. A copy will be mailed on request.

THE PHILIP CAREY COMPANY
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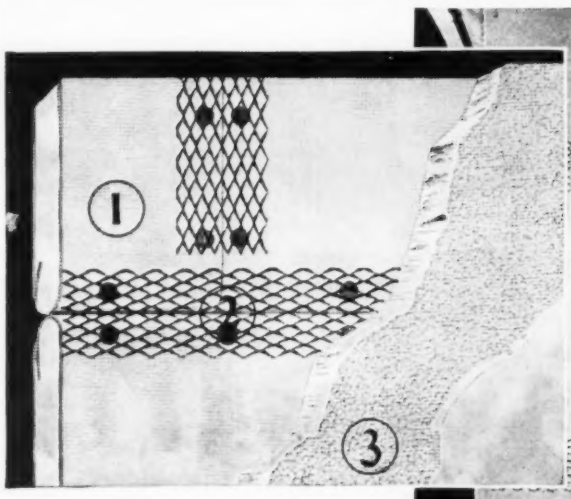
THE STANDARD FOR 58 YEARS

533



The Standard X Plastering System is protected by U. S. Patents

1 Standard X Lath is a special Gypsum Lath, ⅜x16x48 inches, with a special fiber surface. Plaster bonds more tightly to it than to any other type of lath.

2 Standard X Metal Fabrics are patented reinforcing strips, applied over both vertical and horizontal joints and angles of Standard X Lath.

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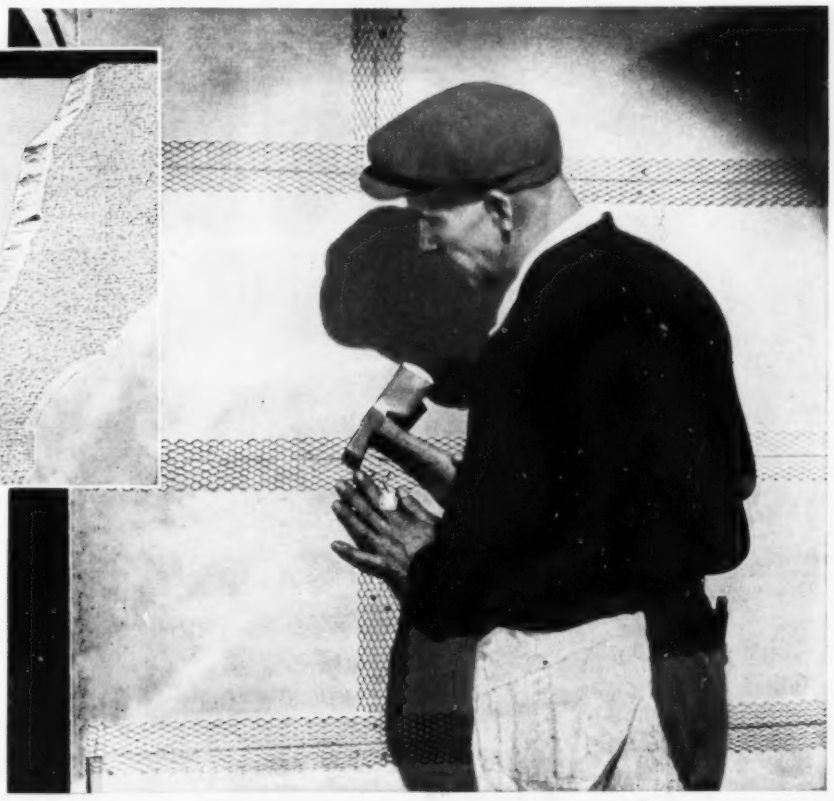

This Plastering System is *guaranteed* to provide complete satisfaction

A Message to Architects from the United States Gypsum Company

. . .

IN the Standard X Plastering System, the United States Gypsum Company offers architects a patented, guaranteed plastering system to provide the best job obtainable. It assures maximum structural strength in a construction especially designed and reinforced to minimize cracking.

Architects can rely upon the Standard X Plastering System with complete confidence. Wherever Standard X has been used its success has been so outstanding that a Guarantee Bond is now furnished. When installed by a licensed contractor in accordance with printed directions, The Fidelity and Casualty Company of New York makes the following guarantee:

> 1. Standard X Base Coat Plaster will form a permanent bond when applied to Standard X Lath and Standard X Metals.
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> 2. The completed Standard X Plastering System installation will provide a wall and ceiling free from joint cracks . . . where the failure is not due to any exterior cause or other condition over which it has no control.

Designed for those who want the best, the cost of the Standard X Plastering System does not prohibit its use in the most modest building or home, comparing favorably with the cost of other high-grade plastering and lathing.

You are invited to investigate this guaranteed plastering system. Complete data on Standard X Plastering System, as well as on Standard X Suspended Ceilings, may be found in Sweet's Catalogue. Literature describing Standard X in more detail and illustrating some of the many quality residences in which it has been used, will be sent upon request. Please address the United States Gypsum Company, Dept. 436X, 300 W. Adams Street, Chicago.

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Gothic

Oak

(REG. U. S. PAT. OFF.)

GOTHIC OAK. . . No term more aptly suggests the feel and fibre of this exceptional wood. . . Its full-depth tone of seasoned brown recalls at once rood-screens and panels of ancient England; its fine, workable texture supplies a ready medium for the re-creation of those decorative treatments and carved details in which the Thirteenth Century stands exalted. . . The obedience of Gothic Oak to chisel and spindle is clearly shown in the delicately-executed carvings illustrated on the opposite page. . . From every standpoint Gothic Oak is a remarkable wood—color (finished without filler or stain), workability, permanence, economy. . . Architects who see Gothic Oak for the first time are at once inspired to new ideals in interior finishing. . . We urge you to send for samples. . . The coupon below is merely for your convenience.

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PHOTOGRAPH OPPOSITE: The John Timothy Stone Chapel, Fourth Presbyterian Church, Chicago. CRAM & FERGUSON, Boston, *Architects;* Dwight G. Wallace, Chicago, *Associated.* All interior woodwork of GOTHIC OAK.

Wood-Mosaic

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Send, without obligation, sample of Gothic Oak for interior trim and descriptive literature.

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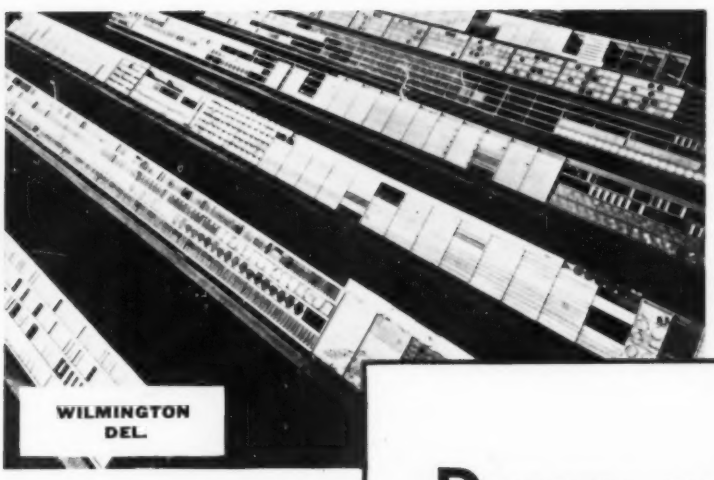
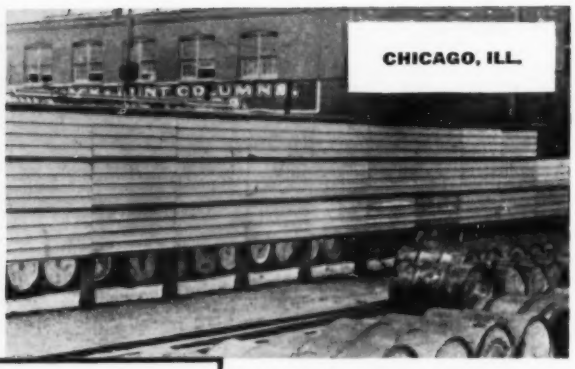
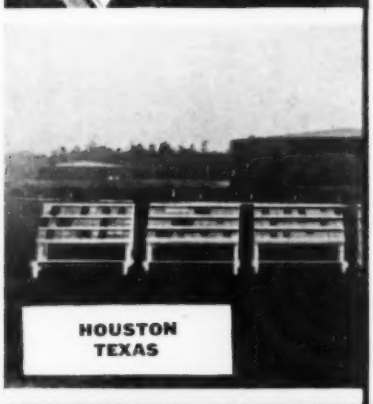
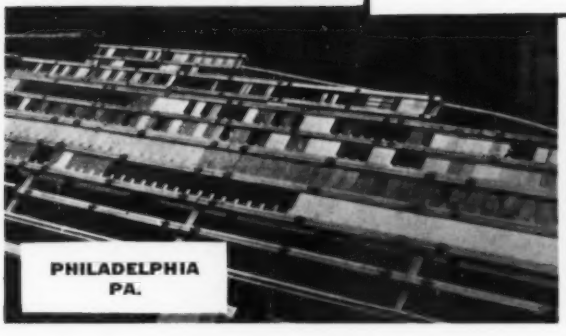
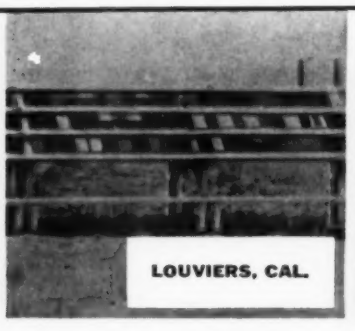




Down on the PAINT FARMS







No life of ease for du Pont finishes

IN different parts of the country du Pont maintains paint farms. There du Pont paint, varnish, enamel and lacquer finishes undergo the most exacting tests that the weather can muster. Sun and rain, heat and cold, sleet and snow, destructive gases attack them and try to destroy them. Every finish proves its durability *before* a painter applies it...*before* you specify it. In this way every du Pont finish is pre-tested.

By proving their durability, first at paint farms, and then on structures of all types, du Pont finishes establish beyond question the competence of the du Pont laboratories to create and produce finishes which protect and beautify a surface for a longer time. They are finishes which you can specify, as do many other architects, with full confidence in their unvarying high quality.

◆ ◆ ◆

We invite your inquiry about du Pont paints, varnishes, enamels, Duco, and other finishing products. Our architectural division is equipped to deal intelligently and quickly with special problems regarding application, decorative effects and technique. Write E. I. du Pont de Nemours & Co., Inc., Dept. A6, at any of these addresses: 1616 Walnut St., Philadelphia; 2100 Elston Ave., Chicago; Everett Station No. 49, Boston; 351 California St., San Francisco.

DU PONT
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VARNISHES ◆ ENAMELS ◆ PAINTS ◆ DUCO

NO SHADOW-SHAVING
AT THE NEW MAYFLOWER!

"Edge-Lites are among the finest things we've ever done for guest comfort," says hotel man

PICTURE yourself as a guest entering a room in your hotel. Turn to the bath, the first haven for arrivals. Do you find a lone bulb in the ceiling, or a fixture casting shadowy illumination over the mirror? Do you look forward to shaving under your chin and around your jowls, twisting like an eel, under that doubtful light? Would a woman guest enjoy such a murky make-up mirror?

Then step into a chamber in Theodore De Witt's Mayflower Hotel. What brilliance in the bath! For there are Henkel "Edge-Lite" Cabinets. Flanking each cabinet are "Edge-Lite" fixtures, movable at will around the mirror. Putting bright light just where it's wanted on the face. Illuminating the room with even radiance. And actually costing less than a cabinet plus the usual lighting fixtures.

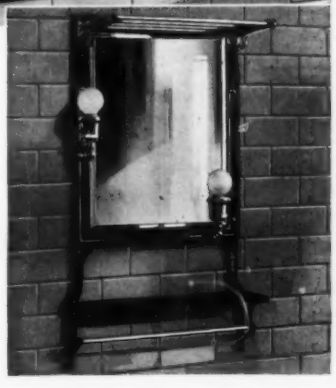
Mr. Theodore De Witt, President of the Mayflower Hotel, who speaks enthusiastically about his "Edge-Lite" Cabinets and Bathroom Illumination.

Leading Hotels Using "Edge-Lites"

"At the new Mayflower Hotel our 'Edge-Lites' look beautiful; everyone is delighted," writes Theodore De Witt, President. "'Edge-Lites' impress a guest at the times when he's most impressionable—when he arrives, and when he arises in the morning," says an experienced hotel man. That's why within less than a year after their announcement, "Edge-Lites" went into the Town House, New York; are specified in the 1,000-room National Railways Hotel, Vancouver, B. C.; and a dozen other great apartments and hotels; and now even the last two unfinished floors of the new Schroeder Hotel at Milwaukee have "Edge-Lite" Cabinets and Bathroom Illumination.

"Edge-Lites" are valuable competitive aids for new hotels; they're new; they're readily seen and appreciated. And there's nothing better than "Edge-Lites" for refurbishing older hotels; for economy, you can install "Edge-Lite Aplakays," smartly adaptable to any existing cabinet or mirror. Get the facts on "Edge-Lite," the new Bathroom Illumination that's storming the whole hotel world! Beautiful, informative catalog on request. HENKEL EDGE-LITE CORPORATION, 900 N. Franklin Street, Chicago.

Above, the new Mayflower Hotel, Akron, Ohio's newest hostelry. Equipped throughout with "Edge-Lite" Cabinets and Bathroom Illumination. (Graham, Anderson, Probst & White, Architects.)



At left, above, the "University," "Edge-Lite" Cabinet. 19x30x5 in., 3 shelves. 16½x20½ in. mirror. Ivory door, green box. Has two "Edge-Lite" fixtures that "move in the slot" at a finger touch. Passed by Board of Underwriters. Used in the Mayflower Hotel.

At left, the "Gramere," also installed at Mayflower Hotel. Has mirror, two "Edge-Lite" fixtures, towel rack, no cabinet.

HENKEL "EDGE-LITE"

(A-4651)

★ ★

The Beauty of Hand Craftsmanship–

The new Lupton Georgian Steel Window

[ABOVE]
With its light muntins and slender meeting rail and framework, the new Lupton Georgian Steel Window combines with beauty all the advantages of steel construction—and at a cost that compares favorably with weather-stripped wood sash.

●

[LEFT]
Employing spring balance suspension, the new Lupton Georgian Steel Window has finger-tip action. Notice the large clear glass opening. Not even a steel casement window gives a larger glass area within the window opening.

AGE-OLD in pattern, the Lupton Georgian Steel Window is wholly new in utility, simplicity and economy. It employs an improved spring balance suspension. Housed in water-and-dust-tight casings, the balances are mounted above the meeting rail on either side of the frame. Provision is made to permit nesting the balances when a narrow mullion is desired. Balances are readily adjustable, and will withstand years of service.

The window is inherently weather-stripped. This is done by the use of a simple combination parting and weather-strip at the jambs; an extruded aluminum weathering member at the meeting rail; and by double lap contacts at head and sill.

Another important feature is that all fitting is done at the factory to assure correct sash clearances and proper operation. These clearances are maintained until window is ready for glazing by an ingenious method of self-bracing during shipment and installation.

In cost, the new Lupton Georgian Steel Window compares favorably with the first cost of wood sash with weather-stripping, hardware and fitting—while its long life makes it far more economical and satisfactory in the end. To any building in which wood sash might be used, the new Lupton Georgian Steel Window will bring higher lighting efficiency and far greater beauty.

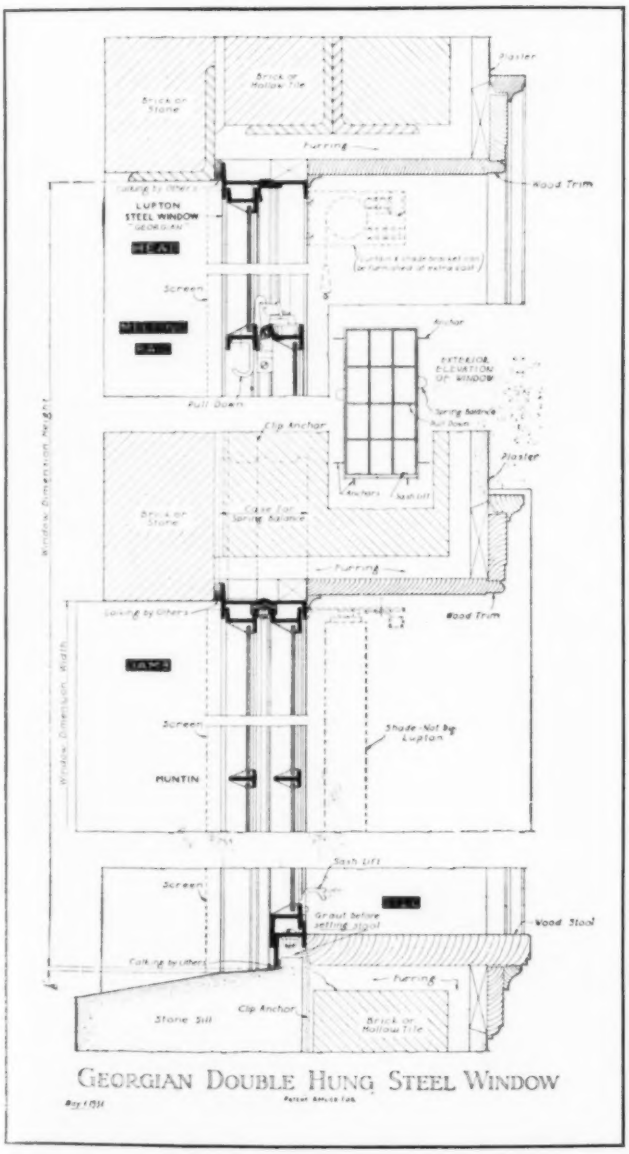
Write to David Lupton's Sons Company, Philadelphia, Pa., for the free booklet, "The New Georgian Steel Window," describing this window in greater detail.

(*On opposite page*) One of the 20 sheets of Lupton Approved Installation Details, greatly reduced. Note how this sheet indicates correct construction around (lintel, jambs and sills) a Georgian Steel Window.

Lupton

in a Low-cost Steel Window—

A new Lupton service—approved installation details that include the entire window opening



GEORGIAN DOUBLE HUNG STEEL WINDOW

THE correct design of a window opening is a matter of proper detailing of the surrounding construction as well as of the setting of the window in the opening. This matter, long neglected by window manufacturers, is a constant problem for every architect and builder.

Lupton has solved this problem through the preparation, by competent architectural consultants, of a series of Lupton Approved Installation Details. These show at 3" scale or at full size, correct and time-tested construction of window openings in solid masonry, masonry veneer, stucco and frame construction. Every detail of flashings, wind stops, and caulking is correctly indicated to assure weather-tight installation of steel windows.

Now the architect can obtain a portfolio of 3" scale details, ready for tracing on his own drawings, for the Lupton Georgian, Residence Casement, Master Casement, Master Office Window and other popular Lupton products. The draftsman may follow them with complete assurance of their correctness and adequacy. If preferred, the architect or builder may obtain from his local Lupton representative full-size details in blueprint or tracing form for use with the architect's job drawings.

Hitherto steel window installation details have been confined to anchorage of the window in the opening. The new Lupton Approved Installation Details show, for the first time, correct construction of the window "surround." The saving to architects in designing and drafting time through the use of these sheets is incalculable.

Write to David Lupton's Sons Company, Philadelphia, Pa., for your portfolio of these Lupton Approved Installation Details, together with a booklet explaining their use and special features.

Steel Windows

Chosen for Outstanding Excellence...

BAYLEY WROUGHT IRON WINDOWS

ARCHITECTS and builders fully conversant with the traditions of fine craftsmanship associated with Bayley's 50 Years of Experience, expressed first by achievements in wrought iron and later in steel, bronze and aluminum . . . recommend and specify Bayley Wrought Iron Windows.

Possessing the outstanding excellence of design and workmanship for which Bayley has become universally recognized, and made of "Genuine Wrought Iron," noted for toughness, durability, and resistance to corrosion by steam, fumes, vapor, salt water and salt air . . . Bayley Wrought Iron Windows are making a name for themselves where both efficiency of operation and immunity to rust under severe service conditions are prerequisites. Write for full particulars. The William Bayley Company, 132 North St., Springfield, Ohio.

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New York, 67 W. 44th St.
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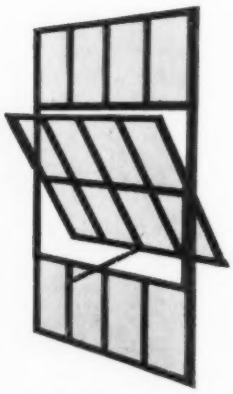
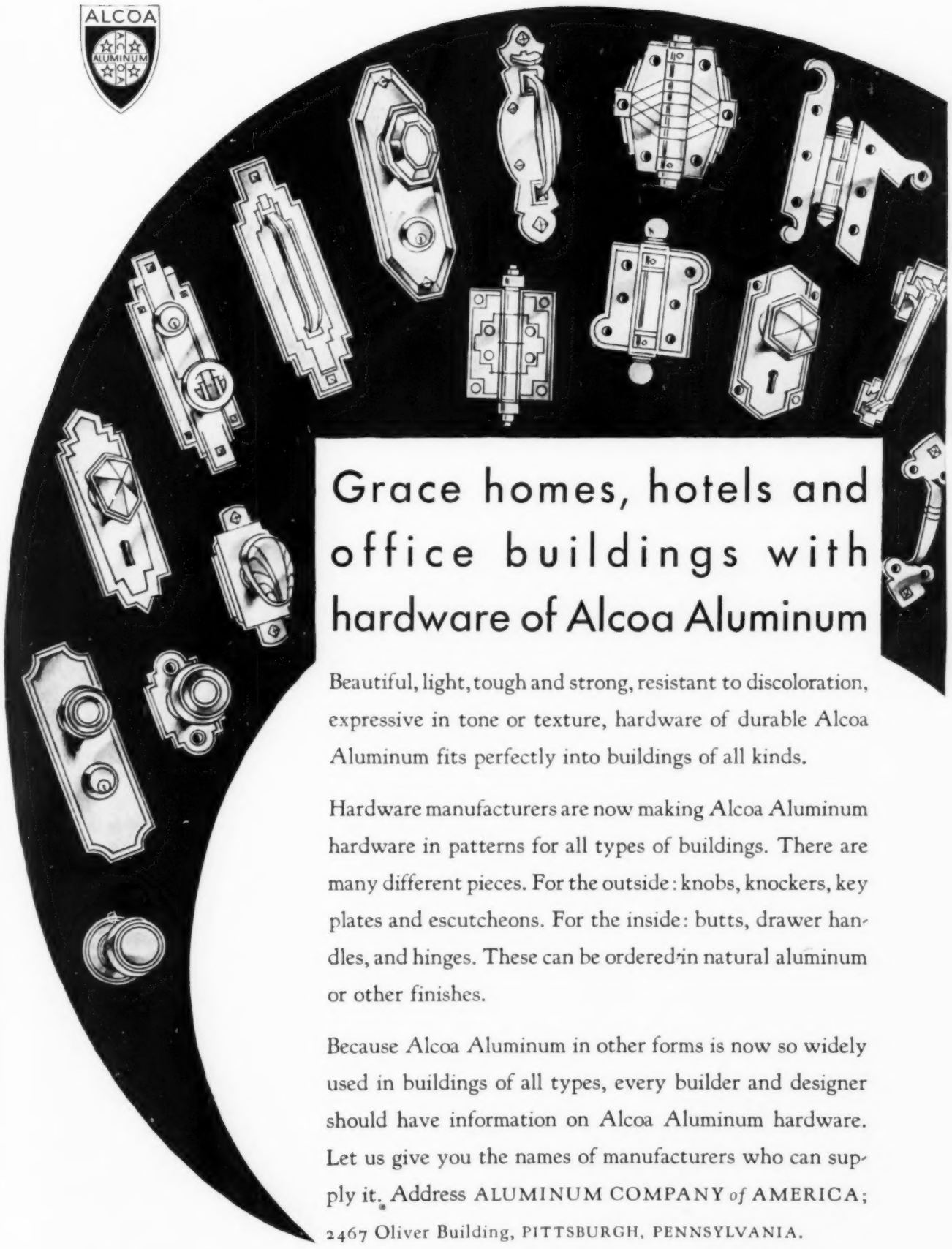
Sales Agencies also in Principal Cities



Bayley Wrought Iron Pivoted Windows are particularly adapted for railroad terminals, docks, chemical plants, and all places where service conditions are severe.

BAYLEY
WINDOWS & DOORS
STEEL..WROUGHT IRON..BRONZE..ALUMINUM



Grace homes, hotels and office buildings with hardware of Alcoa Aluminum

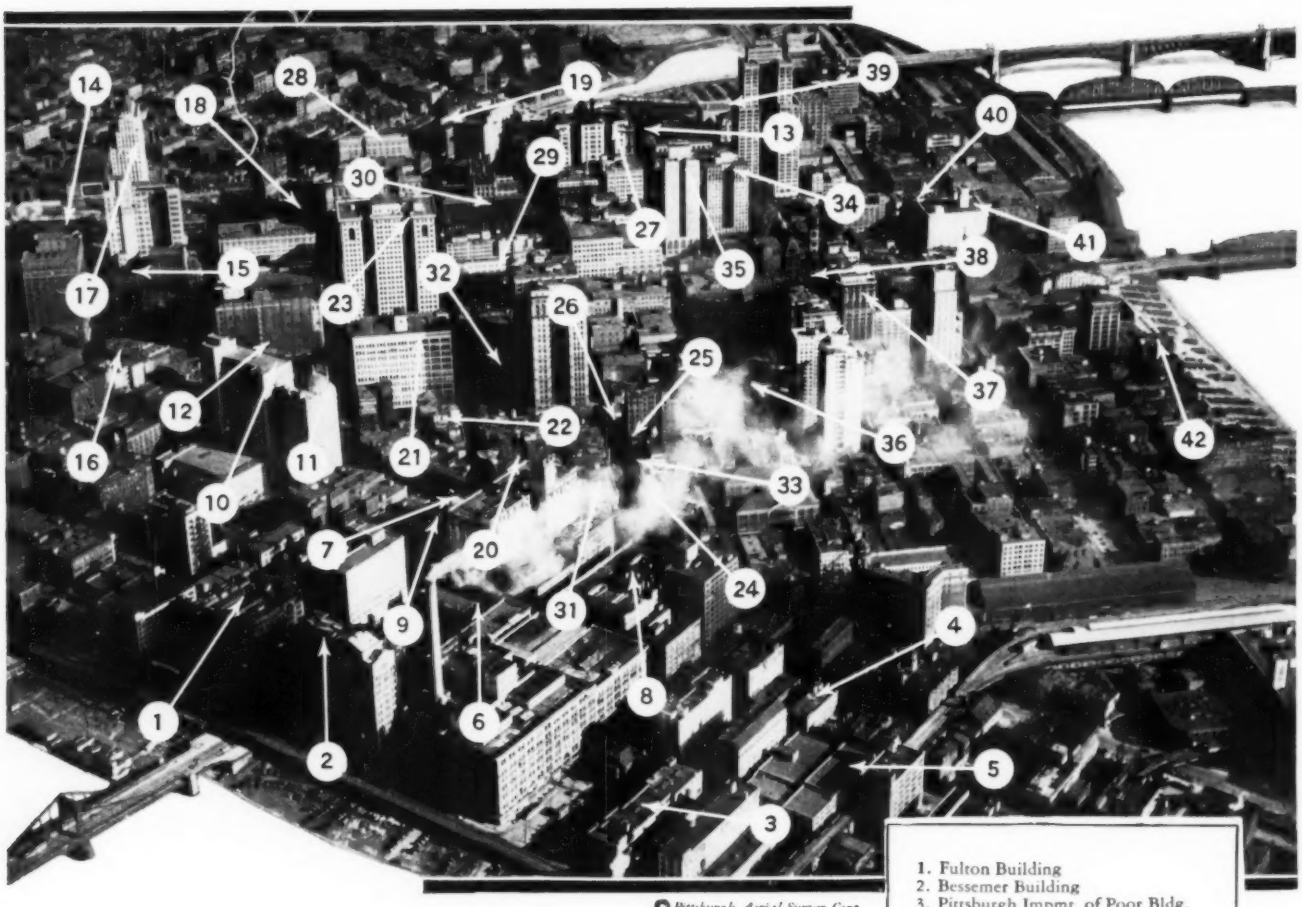
Beautiful, light, tough and strong, resistant to discoloration, expressive in tone or texture, hardware of durable Alcoa Aluminum fits perfectly into buildings of all kinds.

Hardware manufacturers are now making Alcoa Aluminum hardware in patterns for all types of buildings. There are many different pieces. For the outside: knobs, knockers, key plates and escutcheons. For the inside: butts, drawer handles, and hinges. These can be ordered in natural aluminum or other finishes.

Because Alcoa Aluminum in other forms is now so widely used in buildings of all types, every builder and designer should have information on Alcoa Aluminum hardware. Let us give you the names of manufacturers who can supply it. Address ALUMINUM COMPANY *of* AMERICA; 2467 Oliver Building, PITTSBURGH, PENNSYLVANIA.

ALCOA ALUMINUM

AND IN THE GOLDEN TRIANGLE



© Pittsburgh Aerial Survey Corp.

1. Fulton Building
2. Bessemer Building
3. Pittsburgh Impmt. of Poor Bldg.
4. Professional Building
5. Pittsburgh Parking Gar., West Unit
6. Oppenheim Collins & Co., Bldg
7. Loew's Penn Theatre
8. Jenkins Arcade Building
9. Pittsburgh Life Building
10. Clark Building
11. Keenan Building
12. Monongahela National Bank Bldg.
13. City-County Building
14. Federal Reserve Bank Building (in course of construction)
15. Bell Telephone Co., Grant Exchange
16. Seventh Avenue Hotel
17. Koppers Building
18. Philadelphia Building
19. Union Electric Company Building
20. Women's Exchange Building
21. McCreery & Company Store Bldg.
22. Hardy-Hayes Building
23. Henry W. Oliver Building
24. Diamond National Bank Building
25. Exchange National Bank Building
26. Donahoe's Store
27. Frick Building
28. William Penn Hotel and addition
29. Mellon National Bank
30. Union Trust Building
31. Hacke Building
32. Aaronson Building
33. G. C. Murphy Company Store Bldg.
34. Law & Finance Building
35. Pittsburgher Hotel
36. Herbert's Restaurant Building
37. Union Bank Building
38. Keystone Bank Building
39. B. F. Jones Law Building
40. Salvation Army Building
41. Gilmore Drug Company
42. Conestoga Building

. . . 42 buildings are Jennings-equipped

AMONG the many buildings in the City of Pittsburgh which are served by Jennings Pumps, 42 are located in the Golden Triangle section.

Here, as elsewhere, the advanced design, and the trustworthy performance of Jennings Vacuum Heating Pumps, Jennings Centrifugal Pumps, Jennings Sump Pumps and Jennings Sewage Pumps make them the first choice of architects, engineers and building owners.

NASH ENGINEERING COMPANY
13 WILSON ROAD · · · SOUTH NORWALK, CONN.

Jennings Pumps

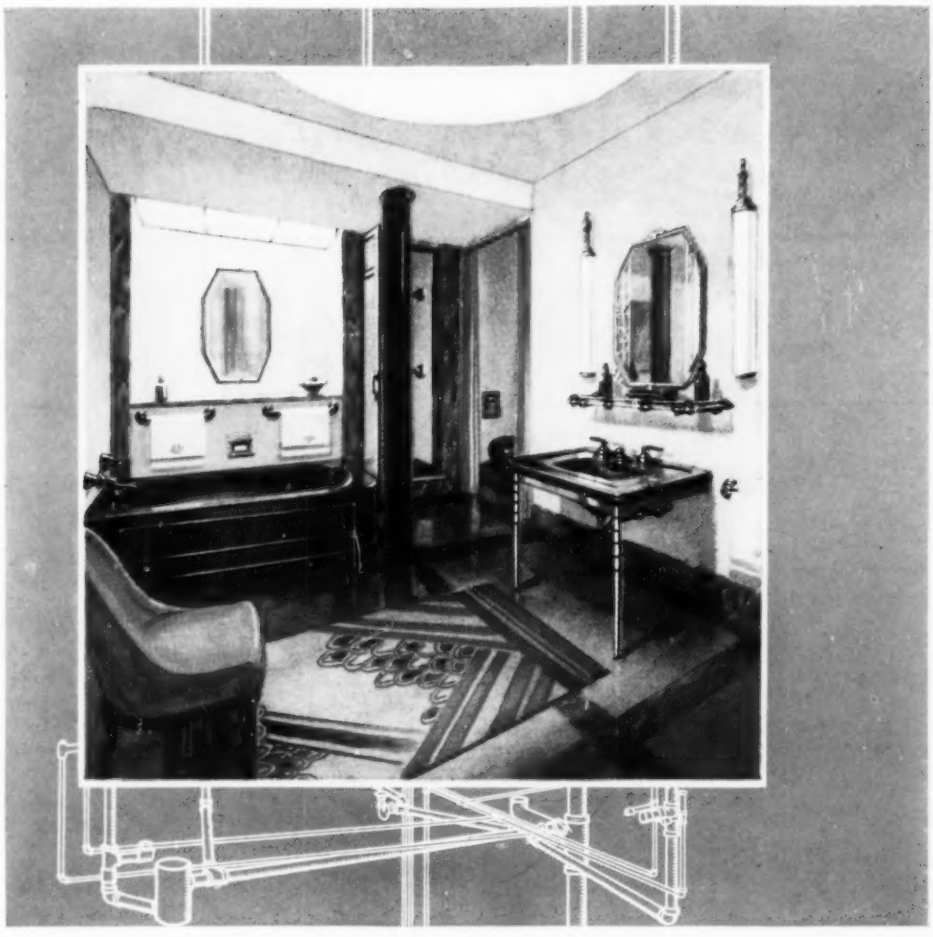
WHEN

THE BATHROOM

COMES

INTO ITS OWN

it will be
through architects



"For skilled guidance in planning a room to fit you and your house, see your architect." So was climaxed the description of this bathroom when it appeared in magazines destined for the hands of some million home owners and prospective home builders. It is typical of the steps Crane Co. is taking towards giving the architect every measure of cooperation. Crane Co. realizes that the advances it has sponsored in bathroom making—new fittings, new fixtures, new conveniences, color—have emphasized an element in bathroom planning which in the past was of minor importance . . . *taste.* And it, better than anyone else, recognizes that only architects can supply this factor.

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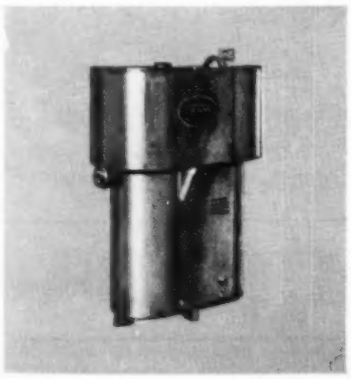

SOFT WATER SERVES BEAUTY AND ECONOMY . . .

Soft water preserves delicate complexions from roughening and chapping. It means a smoother shave and a pleasanter bath. It keeps water pipes from liming-up; gives comfort and saves money in a score of ways. Your clients can have it, automatically, from a Crane-Warlo Electro-matic Water Softener. See this and countless other new ideas at Crane Exhibit Rooms. Like any item in the complete Crane line of plumbing and heating materials this softener can be purchased and installed under the Crane Budget Plan. Nothing is paid until the installation is made; then small sums monthly.

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AND DULL FOR ANY

DESIRED SHEEN

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Liquid Granite is a tough, elastic varnish—unequalled for long-life and good looks. It can be washed again and again—never turns white. Rigorous tests conducted by the Detroit Testing Laboratory plus performance records established throughout more than 72 years of manufacturing prove Liquid Granite's amazing resistance to wear.

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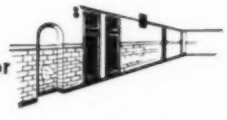
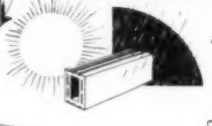
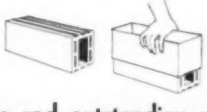
FOR BUILDINGS WITH A FUTURE — THIS MATERIAL WITH A PAST . . . .

Natco VITRITILE

NATCO Vitritile is a structural unit for interior  or exterior load bearing and non-load-bearing walls and partitions. Ranges of charming shades and colors, both plain and mottled lend color harmony and interest. Faces are glazed—and all glazing is high-fired, in temperatures of 2000° and more. Natco Vitritile resists the attacks of dirt, grease, chemicals weathering  and time . A comprehensive line of shapes corners wainscots cove base and so on provide for all structural needs. Each piece is enclosed in a carton  insuring its arrival in first-class condition.

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STRUCTURAL CLAY TILE

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The largest concern in the world manufacturing a complete line of Structural Clay Tile and Underground Clay Conduit.

GALVANIZED SHEETS PROTECT · SAVE WITH STEEL

BEHIND THIS BEAUTY...

pipe permanence

Entrance detail—450 Sutter Building, San Francisco. Architects—Miller & Pflueger, San Francisco, Calif.

APPEALING to the artistic in its details of design, built to endure for a lifetime of usefulness, the 450 Sutter Building typifies the modern combination of beauty and permanence in commercial building construction.

◆ Hidden behind the exterior beauty of this building and contributing in a large measure to its utility and permanence is that vast network of piping which comprises the plumbing and heating systems. Here, as in thousands of other fine buildings throughout the country, Youngstown steel pipe affords sound insurance of a lasting pipe installation. It is not just a coincidence that Youngstown pipe is specified by so many leading architects—and used in so many of America's finest buildings.

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One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"

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New 20 Ampere

Another
Specially-built

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Switch Leaders Again — Pioneers in Meeting *New Needs*

The new "TWENTY", like the heavier "THIRTY" is no common Tumbler with a higher rating to substitute for a specially-built high-wattage control. Its construction follows the tested principle of the H & H Panel-Board Switch, with blades of a special phosphor bronze having extraordinarily large surfaces for absorption and dissipation of heat. « «

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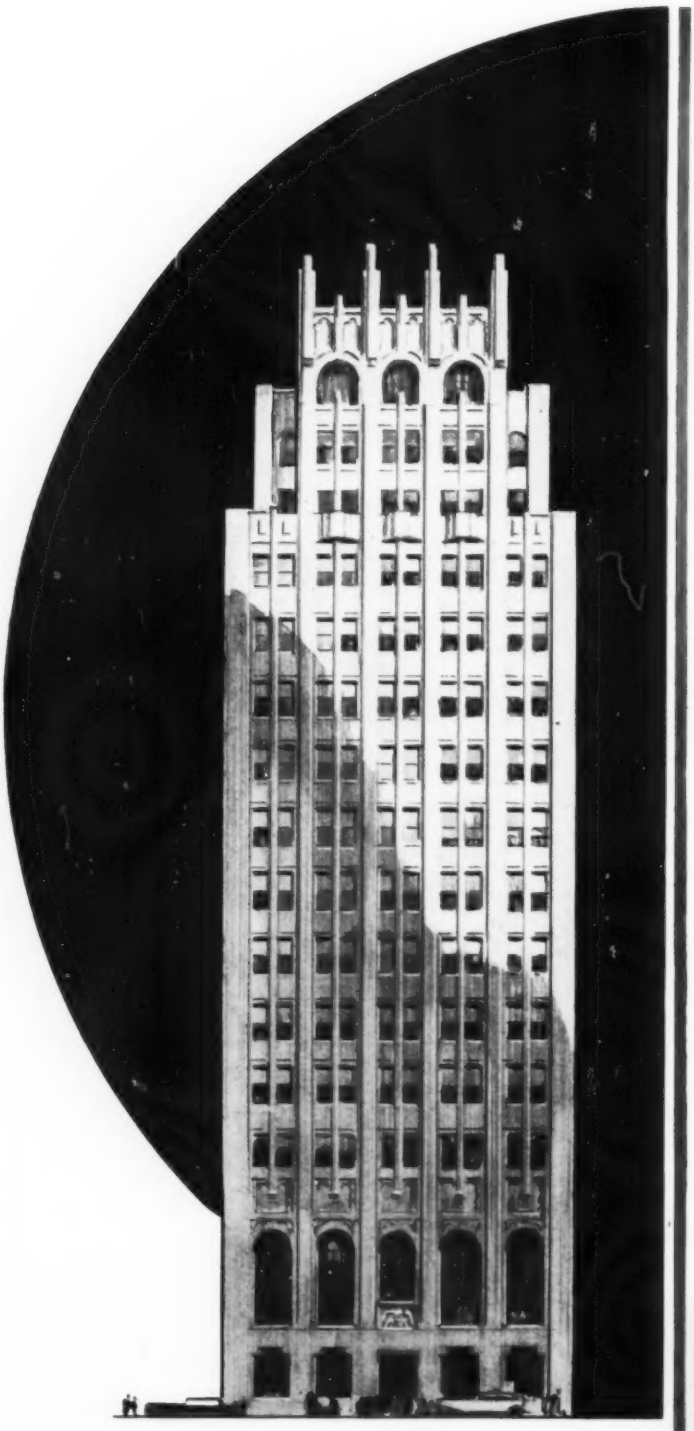

Union and Peoples National Bank Building, Jackson, Michigan.
Albert Kahn, Detroit, Architect.
Equipped with Macbeth GALAX *Globes.*

A BANK INVESTMENT *in perfected illumination*

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When the designers and owners of the new Union and Peoples National Bank of Jackson, Michigan, selected Macbeth Galax Globes for their illuminating system, they assured all future tenants unhampered vision and restful eye-comfort. In the modern building such comfort is as necessary and profitable as an up-to-date plumbing or heating system. It pays dividends in renewed leases.

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Macbeth Galax Globes in two favored shapes. Galax Globes are made of one homogeneous piece of glass of dual opacity, upper part transmitting efficiently with slight diffusion; lower part reflecting without glare.

Macbeth

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Speakman Anystream Self-Cleaning Shower Head (Pat. Jan. 2, 1923).
Lever operated. For residences, hotels and general installation.

All heads have the patented Anystream Self-Cleaning principle. Can be used with Speakman and all other types and makes of showers.

They can never stop up!

K-3396 (*Patented*)
Speakman Anystream Self-Cleaning Shower Head, with ½ inch I. P. female inlet, and lock-shield arranged to operate by a key.

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KEY AND SCREWDRIVER OPERATED HEADS for hotels, public and semi-public places.

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All of these new showers and shower heads are illustrated and described fully in a 16-page bulletin which will be sent to architects. It will be particularly useful to specification writers and engineers, being complete with roughing-in; also contains suggestions on shower piping layouts.

SPEAKMAN COMPANY
Wilmington Delaware

Every architectural office should have at least one copy of this 16-page bulletin on regular and special types of showers; also shows new kinds of shower heads for all kinds of installations.

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Speakman Anystream Self-Cleaning Unit Control Triple-Cluster Shower Head (patented). For use where a large amount of water is desired.

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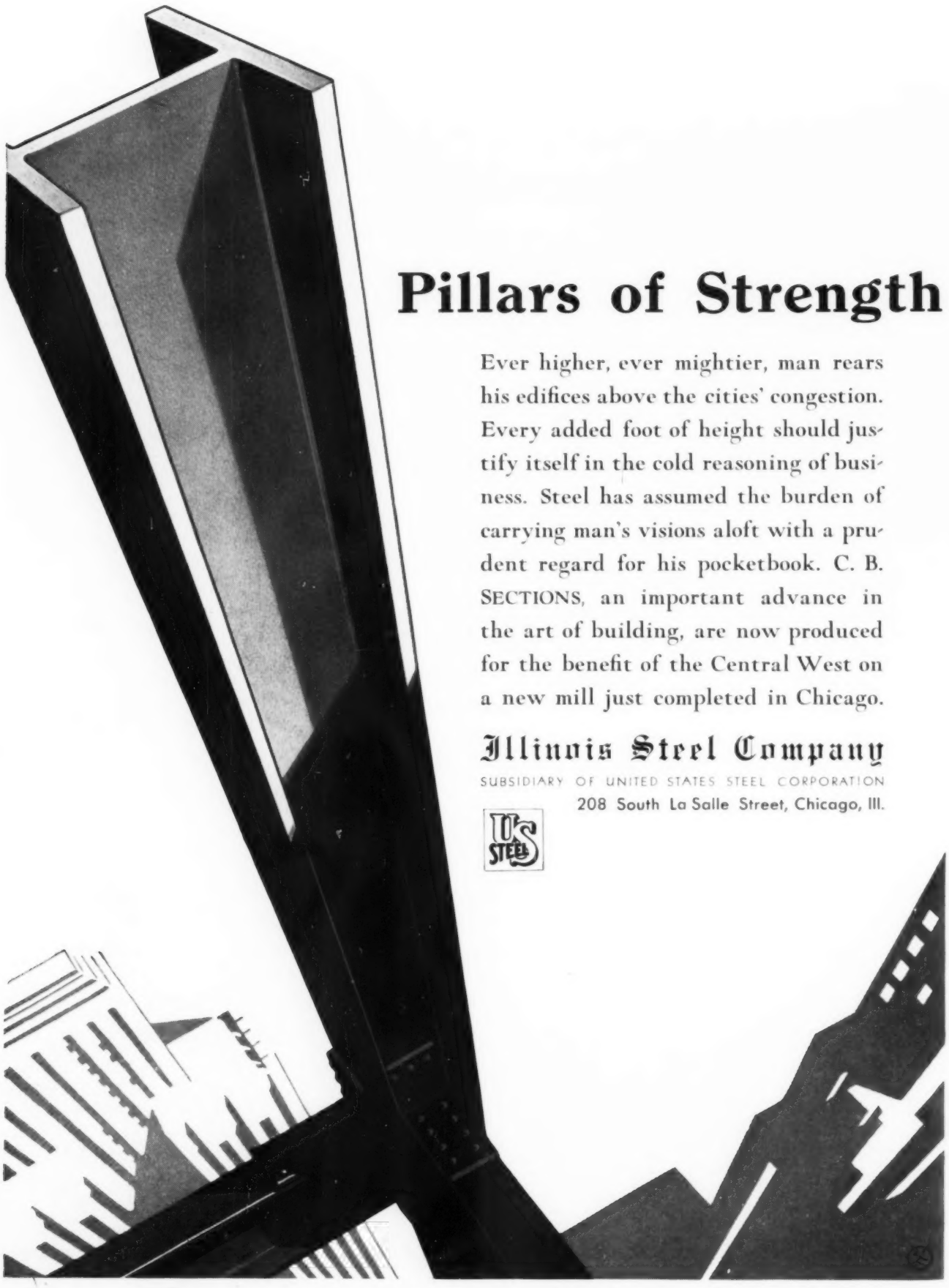
Speakman Anystream Self-Cleaning Wall Type Shower Head with ½ inch I. P. female inlet in center of back and arranged to operate by a 5/16 inch hexagon wrench. For hospitals and institutions.

SPEAKMAN SHOWERS & FIXTURES



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Ever higher, ever mightier, man rears his edifices above the cities' congestion. Every added foot of height should justify itself in the cold reasoning of business. Steel has assumed the burden of carrying man's visions aloft with a prudent regard for his pocketbook. C. B. SECTIONS, an important advance in the art of building, are now produced for the benefit of the Central West on a new mill just completed in Chicago.

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Charles W. Shaver, Salina, Kansas, Architect

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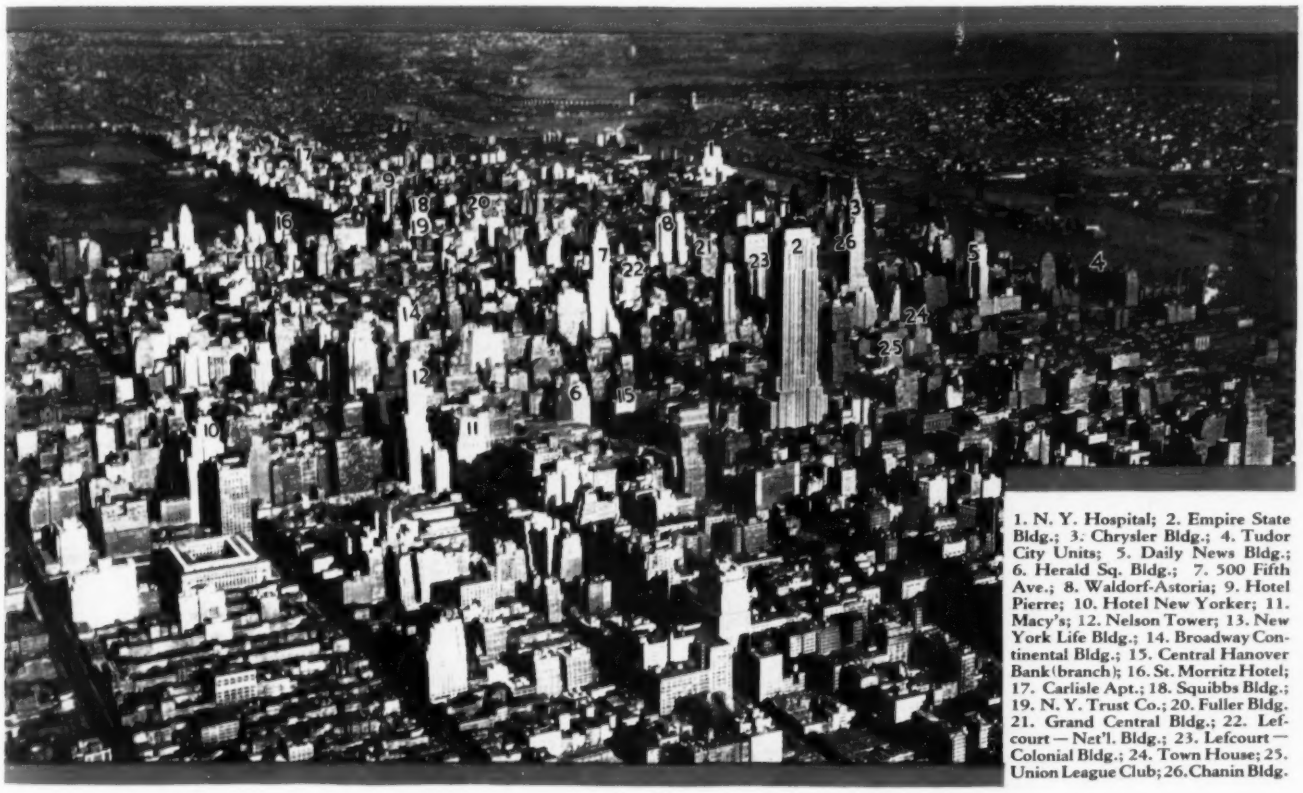

1. N. Y. Hospital; 2. Empire State Bldg.; 3. Chrysler Bldg.; 4. Tudor City Units; 5. Daily News Bldg.; 6. Herald Sq. Bldg.; 7. 500 Fifth Ave.; 8. Waldorf-Astoria; 9. Hotel Pierre; 10. Hotel New Yorker; 11. Macy's; 12. Nelson Tower; 13. New York Life Bldg.; 14. Broadway Continental Bldg.; 15. Central Hanover Bank (branch); 16. St. Morritz Hotel; 17. Carlisle Apt.; 18. Squibbs Bldg.; 19. N. Y. Trust Co.; 20. Fuller Bldg. 21. Grand Central Bldg.; 22. Lefcourt — Nat'l. Bldg.; 23. Lefcourt — Colonial Bldg.; 24. Town House; 25. Union League Club; 26. Chanin Bldg.

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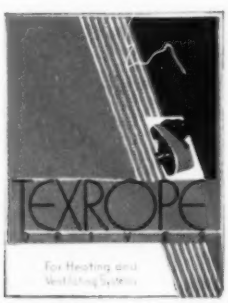
Silent and slipless thruout the life of the drive, Texrope Drives have solved the problem of eliminating noise in fan operation . . . and have done it so well that architects everywhere are writing Texrope Drives into their specifications.



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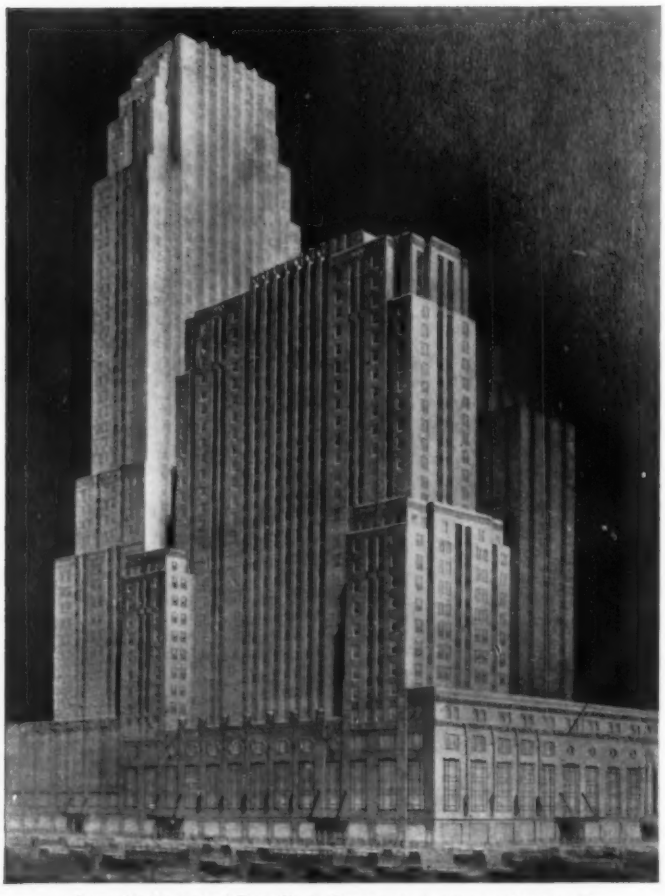
TEXROPE DRIVES
THE DRIVES THAT REVOLUTIONIZED TRANSMISSION PRACTICE • • •

STARRETT'S NETHERLAND PLAZA HOTEL



Starrett's Netherland Plaza Hotel, Cincinnati. Architect: WALTER W. AHLSCHLAGER. Associate Architect: DELANO & ALDRICH.

Monel Metal food service equipment installed in Starrett's Netherland Plaza Hotel, Cincinnati, by THE JOHN VAN RANGE COMPANY, Cincinnati.

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Another modern Monel Metal food service installation

ADD another distinguished name to the growing list of leading hotels where Monel Metal shines . . . "Cincinnati's Classic" . . . the magnificent new Starrett's Netherland Plaza.

Here, as in other top ranking hotels throughout the country, the presence of gleaming Monel Metal equipment reflects the owners' desire to maintain the highest standards of food quality and service. It also proves that these farsighted operators are convinced that Monel Metal offers the best available combination of properties from a practical dollars-and-cents point of view.

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MONEL METAL

NICKEL ALLOYS LOOK BETTER LONGER

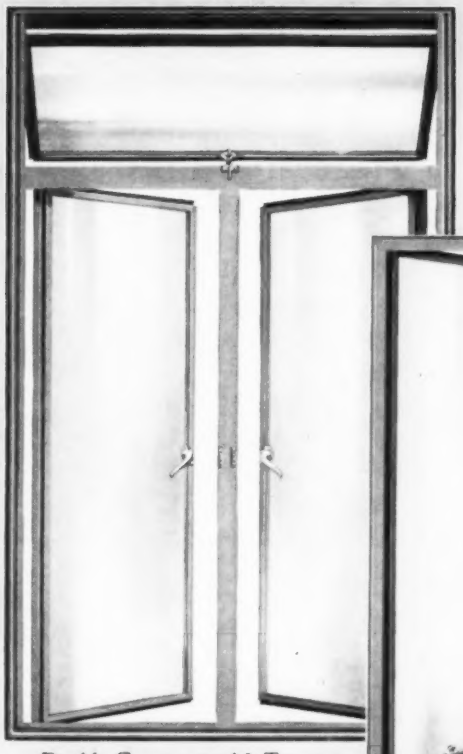
INCO MONEL METAL

Monel Metal is a registered trade mark applied to a technically controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

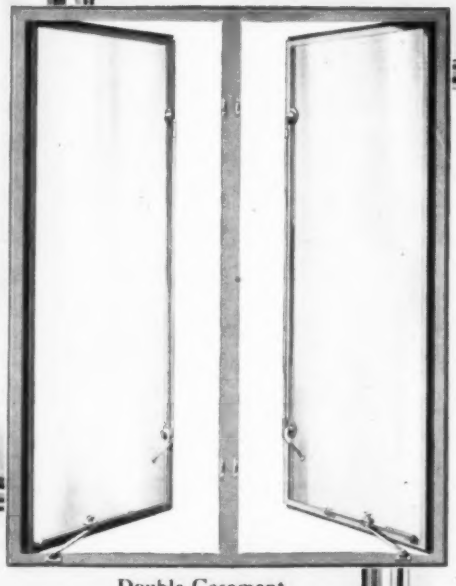
TRUSCON STEEL CASEMENTS

heavy type

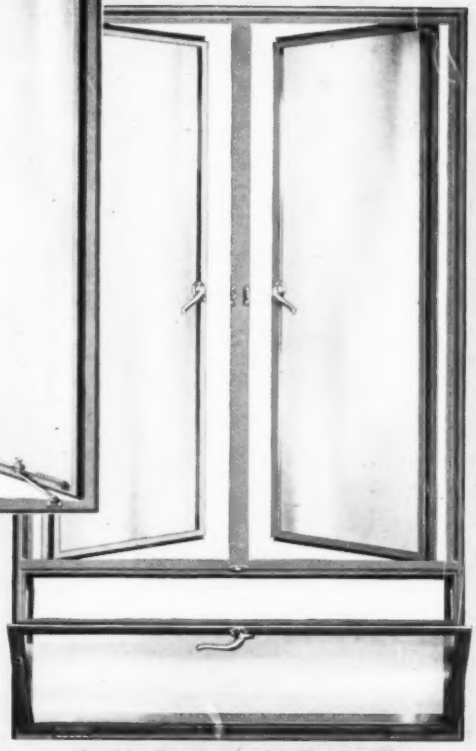
Thoroughly in keeping with modern standards of faultless window service.



Double Casement with Transom



Double Casement



Double Casement with Hopper Vent

Superior Design
The Very Best of Hardware
Prompt Deliveries

In design, construction and workmanship, heavy type Truscon Casements represent the last word in steelcraft. Extra heavy sections are used throughout. Hardware is of solid bronze of improved design. Flat double-contact weathering of at least 3/8-inch occurs around all vents.

Truscon heavy type Casements are furnished to open out or in, in complete units with single or double sash, transoms and hopper vents. Units may be combined to meet architectural specifications. Glazing may be either on the outside with putty or on the inside with putty or special hot-rolled glazing beads.

Catalog and full information on request

TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO

Sales and Service Offices in all Principal Cities

THE search for the elusive element of QUALITY in interior telephone equipment ends with the specifying of Strowger P-A-X.

For Strowger equipment has an unblemished telephone ancestry. Designed, engineered and produced by the originators of the dial telephone, it has won the recognition and approval of the foremost telephone authorities of every country on the globe.

A compendium of information on Strowger products has been prepared especially for architects and engineers. Copies will be gladly furnished on request.

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Automatic Electric Inc.

Factory and General Offices:

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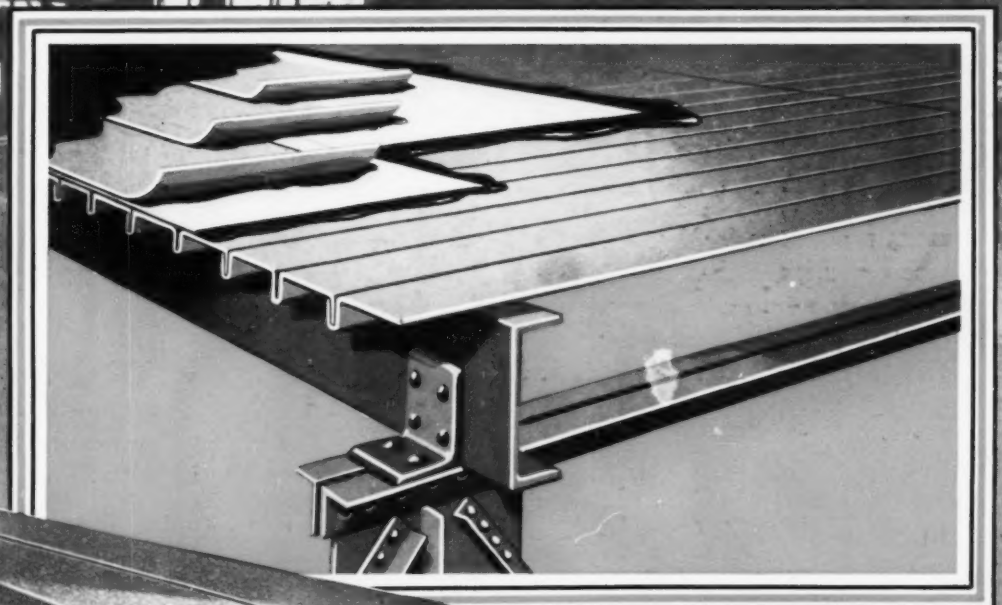
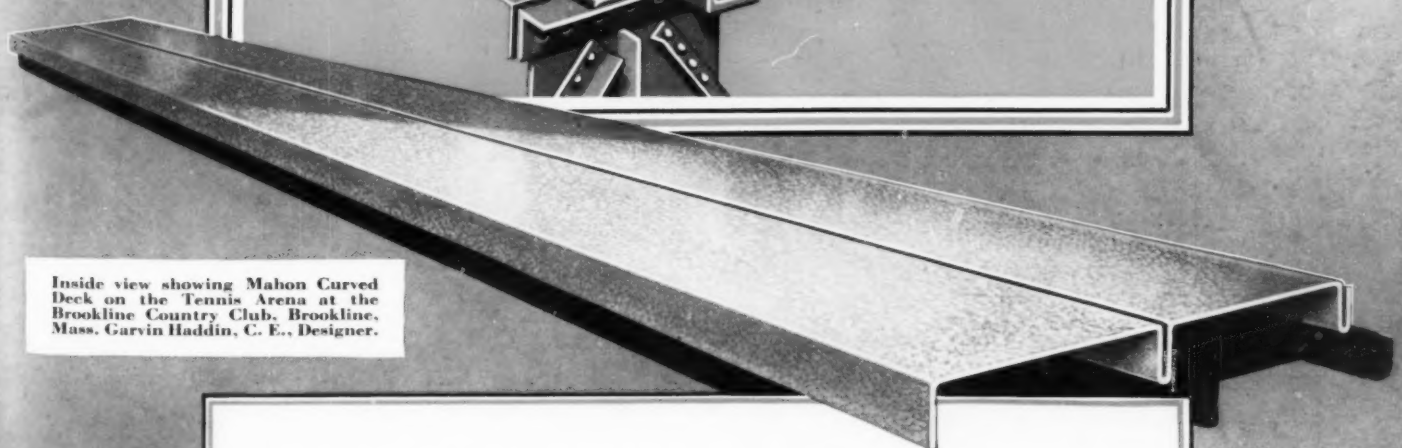
MAHON

STEEL ROOF DECK





Inside view showing Mahon Curved Deck on the Tennis Arena at the Brookline Country Club, Brookline, Mass. Garvin Haddin, C. E., Designer.

Mahon Steel Roof Deck can be furnished curved to fit arched roofs perfectly. It's firesafe, light in weight, economical, permanent, and requires no painting or maintenance whatsoever. For complete information see our insert in Sweet's, or send for our Steel Roof Deck Catalogue.

THE R. C. MAHON COMPANY

DETROIT, MICHIGAN

Representatives in All Principal Cities

THOUGH LINKED CLOSELY WITH THE HISTORIC PAST, *White Pine* IS USED EXTENSIVELY IN *Modern* HOMES

At Ipswich, Mass. Built of White Pine and still standing

As EARLY-AMERICAN architecture has withstood the brunt of three centuries, so has the pine with which those quiet homes were built. Forever allied with the origin and growth of the American scene, White Pine today holds high place in the estimation of architects and builders.

It was White Pine from which those beautiful doorways were cut . . . the batten shutters that wind and sun have left unharmed . . . the sheathing, the clapboards, the dormers and paneled rooms . . . and real White Pine can still be bought for the homes you plan! Idaho (genuine) White Pine, nature's finest building lumber, grows abundantly in the Inland Empire of the Great Northwest.

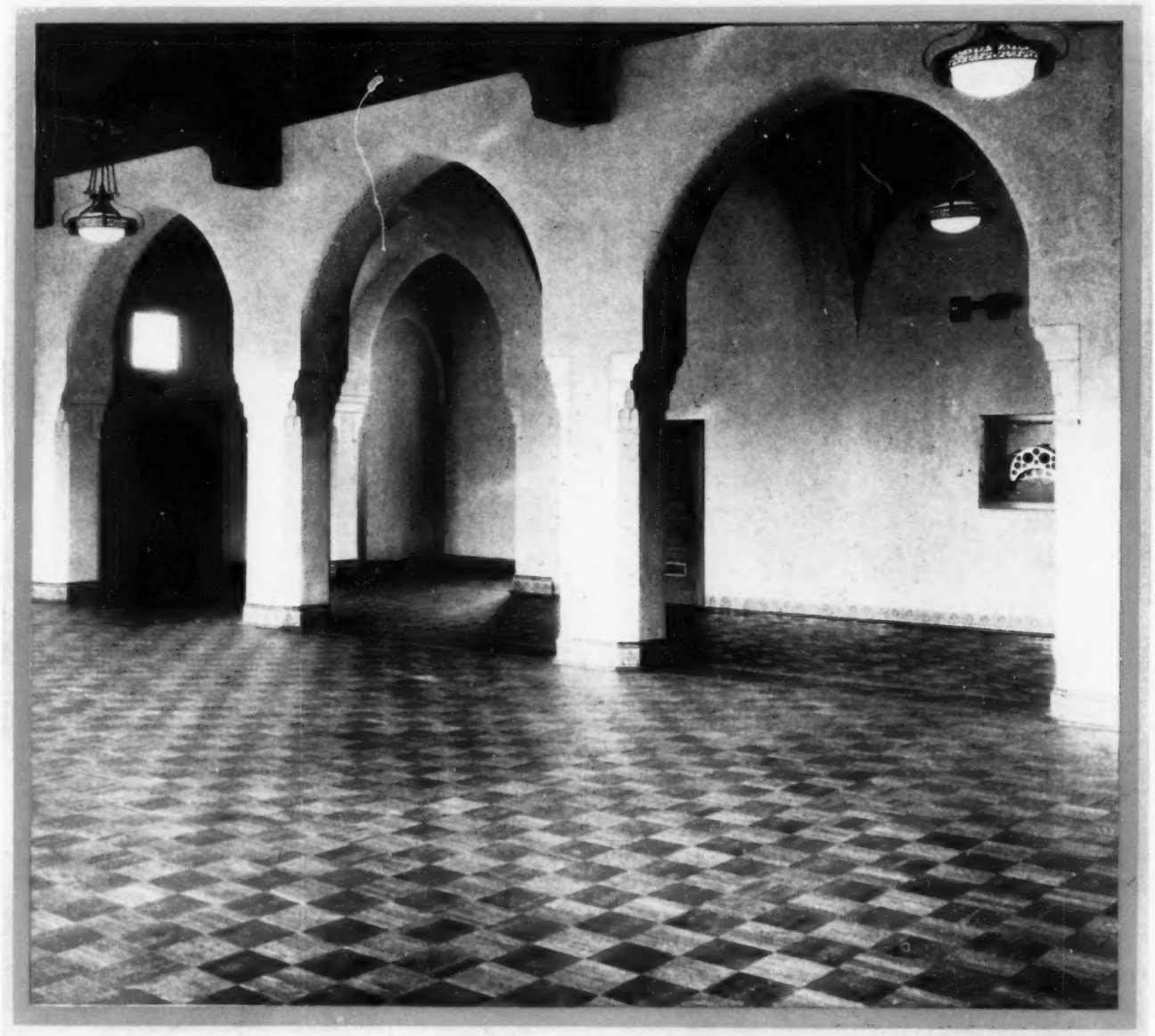
Characterized by a straight, light, moire-like grain, this beautiful pine takes a high finish and can be stained and waxed with fine effect. Paints flow smoothly and freely over its sleek surface. Age mellows its color. . . . Thoroughly seasoned, Idaho White Pine works easily with hand tools and machines, since the soft texture, thin and even cell structure, medium-length fibers and freedom from resins encourage speed and accuracy.

To almost every building task, within a house or on the exterior, Idaho White Pine brings a freshness and beauty few other treatments approach. Specify it for knotty pine paneling, finished in weathered brown . . . for bevel siding, exterior finish, window and door frames . . . for moldings and trim in schools, banks, apartments, homes . . . for wainscoting, sheathing, and cabinetwork. Idaho White Pine will give perfect satisfaction now and for generations to come. Western Pine Manufacturers Association, Portland, Ore.

(GENUINE)

Idaho WHITE PINE IWP

The familiar trade-mark has been used for years to protect home owners, lumber dealers, architects and builders



Crocker Highland High School, Oakland, Calif.—Architects: Blaine & Olson

At lowest maintenance cost

Cost of maintenance of a *CELLized Wood Block floor, properly finished with a penetrating finish, is at least 50% less than that of other floor materials suitable for schools. The floor simply requires occasional going over with a soft dry broom, and where needed, a renewal of the finish about twice a year at a cost not exceeding two cents per square foot. The life of the floor itself is practically indefinite; laid in EVERBOND directly over concrete, there is no air space below, eliminating the danger of wood-boring insects, and reducing the fire hazard.

In addition, *CELLized Wood Block floors are quiet, warm and healthful under foot, combining with the all-round merit of wood as a material, the outstanding advantages of beauty and style. Square or rectangles, or combinations in various sizes, with choice of several woods, permit unusual pattern effects.

6¾" to 15" squares, 15/16" thickness, all grades. Rectangle sizes 6"x12", 6¾x13½"; in oak, walnut, maple, beech, light and dark Philippine hardwood, yellow pine, either beveled or square edge.

See our catalog in Sweets, and write us for literature.

**CELLized Wood Floor Blocks are laid only by Licensed Flooring Contractors, who have been carefully selected by *CELLized Oak Flooring, Inc., and who have the ability to install Blocks correctly in accordance with Standard Specifications. Names of those licensed will be sent on request.*

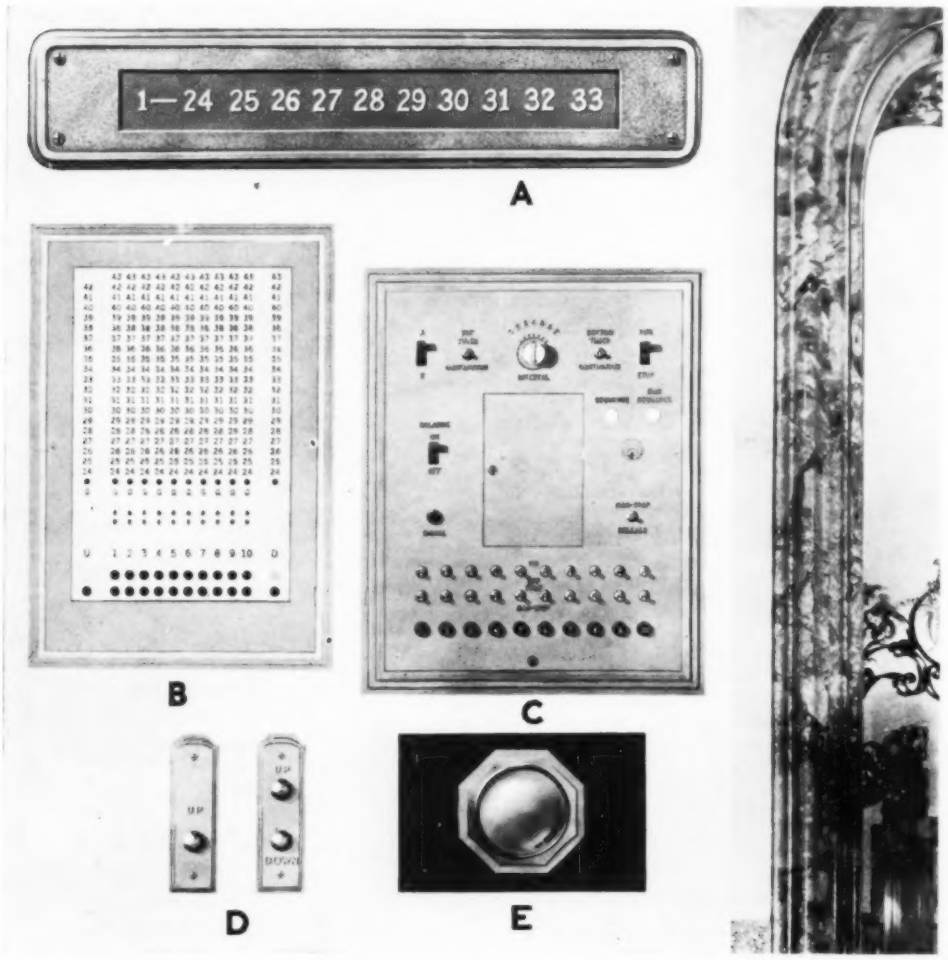
LICENSED *CELLized Oak Flooring INC MEMPHIS TENNESSEE FLOORING CONTRACTOR

Sold through lumber dealers everywhere. Manufactured by
Long-Bell Lbr. Sales Corp., Kansas City, Mo. E. L. Bruce Company, Memphis, Tenn.
Arkansas Oak Flrg. Co., Pine Bluff, Ark. Nashville Hdw. Flrg. Co., Nashville, Tenn.

*CELLized Oak Flooring Inc.

MEMPHIS — TENNESSEE

BELOW: *Some signal devices by Otis.* . . . (A) Multi-light position indicator—shows position of elevator to passengers. . . . (B) Starter's indicator panel—shows position and direction of all elevators to starter. . . . (C) Starter's control panel—schedules all cars to meet traffic conditions. . . . (D) Call buttons. . . . (E) Hall lantern.



TO FILL its place properly, an elevator installation must be a smoothly coordinated *whole*, both in operation and appearance. . . . Mechanically, Otis gains this end by manufacturing *all* the equipment necessary to an elevator installation, in each case following a master design conceived as a unit. . . . Artistically, a similar unity can be maintained, following either the architect's or Otis' basic designs. For Otis shops and foundries are fully equipped to produce special ornamental fixtures in any desired metals, alloys and finishes. . . . The signal devices illustrated above give some idea of the way this works out in details of equipment. . . . Such flexibility of manufacture is particularly valuable to the architect, both in the designing of new buildings and the modernization of old.

OTIS

ELEVATOR COMPANY

339 OFFICES THROUGHOUT THE WORLD

This Big-Size Lumber

SAVES 20 to 60% LABOR COSTS!

Big Panels of Real Lumber in Convenient Sizes up to 4 feet by 8 feet.

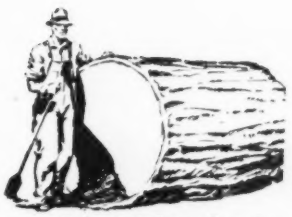
DOUGLAS FIR PLYWOOD gives you larger units of lumber to work with —at twenty to sixty percent saving in the labor of installation.

It reduces the weight of solid lumber by a third to a half—and equalizes its strength in all directions. In addition, this remarkable lumber gives you complete freedom from splitting, shrinking, or swelling, and practically eliminates warping.

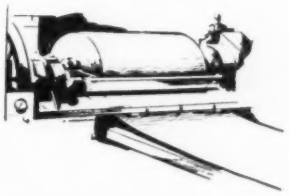
But that isn't all! The *economy* of this lumber makes possible the maximum use of modern design in home and office interiors—for ceilings, walls, panels, cabinets, and built-ins of every description—where once the advantages of plywood construction were limited to costly species.

Not only does Douglas Fir give you the most plywood per dollar—it offers you the utmost in quality and uniformity! Only water-resistant glue is used—stronger and more tenacious than the adjacent fibres of the wood—which means that each panel is welded into one homogeneous unit. (See accompanying diagrams.)

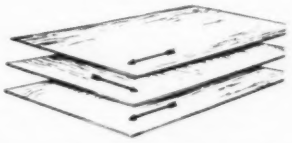
Learn more of this remarkable, inexpensive lumber, and ways in which it is now used by leading architects, contractors, and merchant builders. The coupon below will bring you a sample, and valuable construction details, free.



1 **Selected Douglas fir logs are cut to length and barked.**



2 **Then turned on a giant lathe and peeled off into endless lengths of thin wood sheets.**



3 **These sheets of wood are cut to size, laid cross-grain, and glued together flat with water-resistant glue under hydraulic pressure. *(Arrows show direction of grain.)***

4 **The result is a new and better lumber having all the good qualities of natural wood plus the size and convenience of wallboard — but with advantages of strength, stiffness, and freedom-from-splitting which neither lumber nor wallboard has.**

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Check here if you are an Architect ☐, Contractor ☐, Merchant Builder ☐, or Draftsman ☐, and additional material will be sent you.

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THE NEW

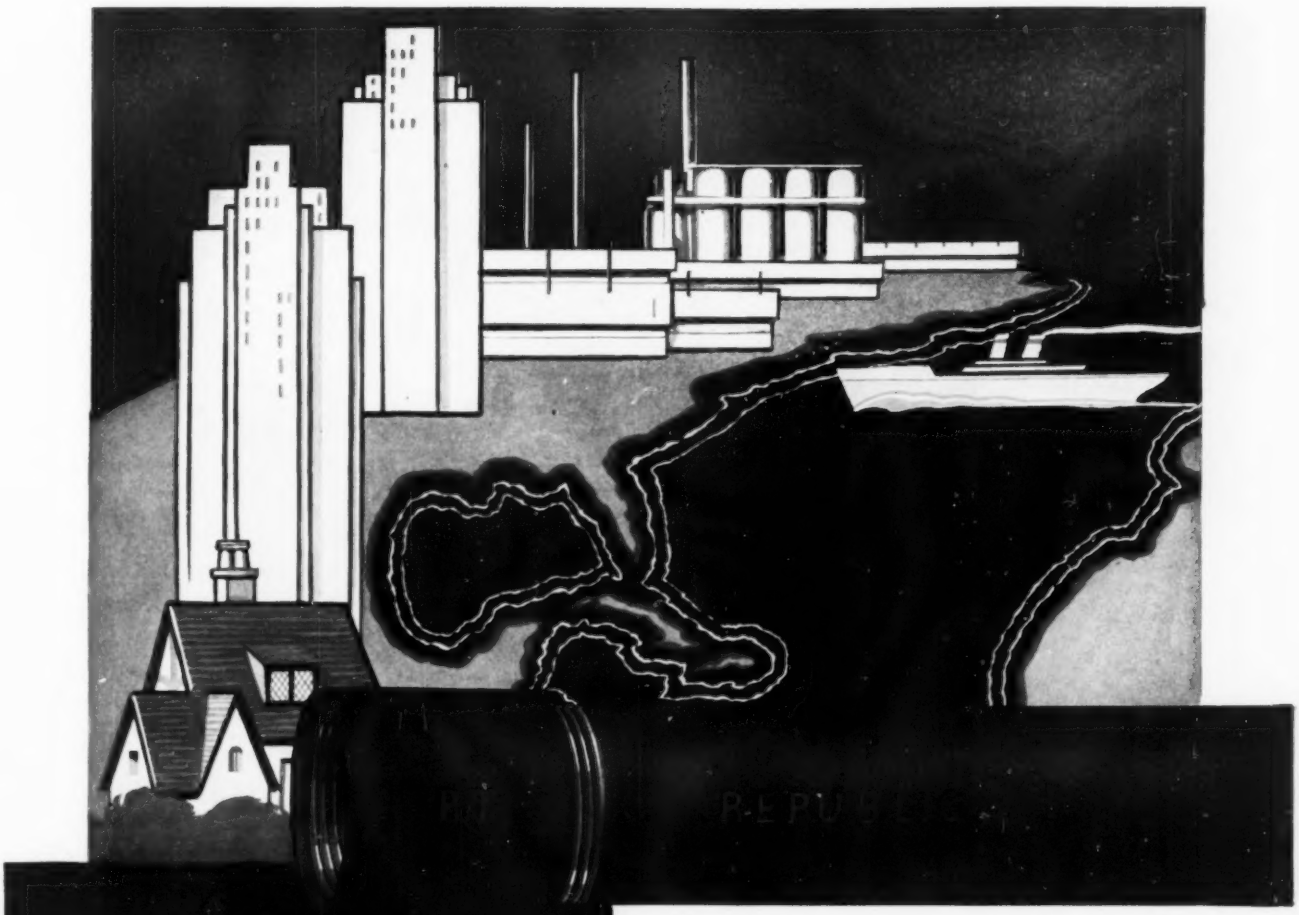
WALDORF ASTORIA

Few, indeed, were the hotels throughout the world, whose reputations for excelling in the gracious art of living could compare with that of the former Waldorf-Astoria. Today a new Waldorf-Astoria rises majestically above the throbbing pulse of Park Avenue . . . twin towers of gray, whose chaste simplicity reflect harmoniously the vibrant spirit of our times. In design, construction and appointments only one standard was considered — the best. ● Frigidaire has been chosen, not only by the Waldorf-Astoria, but also by hundreds of other leading hotels and apartments throughout the world, where quality, beauty and quiet operation are the sole deciding factors. ● This same, new, quiet Frigidaire — with its cabinet of sparkling white Porcelain-on-steel and features that contribute the utmost in convenience, economy, healthfulness and permanent satisfaction — offers a new standard of advanced refrigeration for any home or apartment. If you apply the same high standards of excellence as the Waldorf-Astoria, and other world famous hostelries . . . for you, too, there can be but one choice — Frigidaire. Frigidaire Corporation, Subsidiary of General Motors Corporation, Dayton, Ohio.

Frigidaire

Advanced Refrigeration

THE NEW ALL WHITE PORCELAIN-ON-STEEL FRIGIDAIRES ARE SOLD WITH A THREE-YEAR SERVICE GUARANTEE



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Rust is waste. The tiny red brown particles that mark the ever present tendency of iron to return to its natural state, unimportant as they seem, cost the world one billion dollars every year.

Toncan Iron Pipe helps building owners to cut a slice from this huge tribute to rust—to turn waste into measurable savings.

This different pipe is an alloy of refined iron, copper and molybdenum. Throughout every stage of its manufacture it is processed to resist to a high degree the attacks of rust and corrosion. Consequently its life in severe service is longer and its cost per year of use is less. It is not to be compared with ferrous pipe only slightly lower in first cost—but whose useful life is all too short.

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He will judge a new material for himself!

BI-FLAX is a new material, the only material of its kind. It is our belief that extravagant claims will never sell you this new material . . . that as a competent judge you will study Bi-Flax, and formulate your own opinion of its value.

We can tell you about the distinctive features of Bi-Flax. That Bi-Flax is the only insulated plaster base material in which the insulation functions as insulation alone, and as a result . . . Bi-Flax has maximum insulation value. That Bi-Flax combines the high insulating value of Flax-li-num with flat expanded painted metal lath, and is the only insulating plaster base of steel that provides a positive mechanical key.

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The attached coupon is for your convenience. It will bring you a sample of Bi-Flax . . . that you may examine this new building material, the only one of its kind.

BI-FLAX

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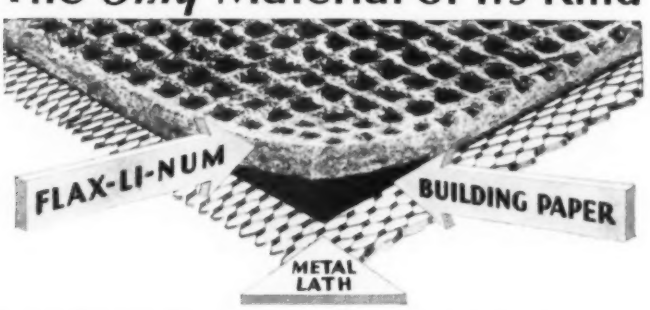

Please give individual name as well as name of firm that samples may be mailed to your personal attention.

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Please send for my inspection a sample of BI-FLAX. Dept. A. R. 3

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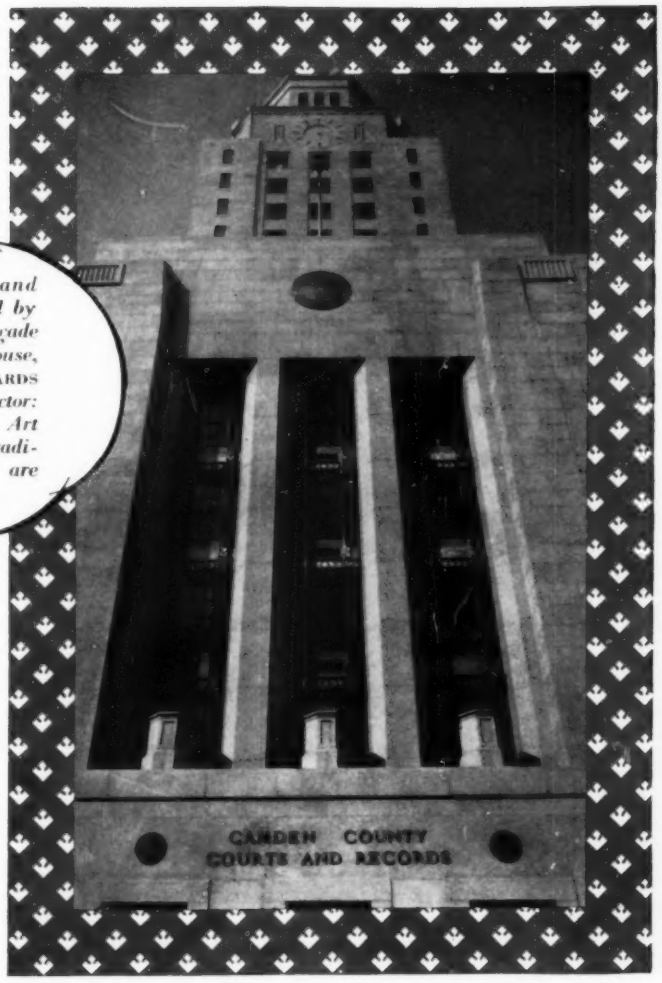
BRONZE LETTERS, TABLETS, *and* WINDOW GRILLES . . . *fabricated by Art Metal . . . ornament the façade of the Camden County Court House, Camden, N. J. Architects:* EDWARDS & GREEN, *Camden, N. J. Contractor:* F. W. MARKS CONST. CO., *Phila. Art Metal Bronze doors, vestibules, radiator grilles, elevator enclosures are used in the interior.*



EVEN IF YOU LIVED IN CHINA, or Berlin, or Brazil, we'd not need to send you pictures of Art Metal installations. We could tell you where to walk to see them with your own two eyes. That promise holds for San Francisco or New York, Seattle or London. There's hardly a city of civilized size in which we can't produce an Art Metal job . . . a faithful interpretation of an architect's conception in bronze or steel, aluminum or hollow metal. Usually we can give you a long, impressive list—banks, offices, hotels, apartment houses and other important buildings. We'd like a chance to prove it. Name your city!

Art Metal
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For your convenience, Art Metal is catalogued in 57 pages in Sweet's

FREDERICK O. ANDEREGG, PH.D.
CONSULTING SPECIALIST ON BUILDING MATERIALS
INCLUDING PORTLAND CEMENT — CEMENT PRODUCTS AND MASONRY
204 FULTON BUILDING
PITTSBURGH, PA.

April 11th, 1931

The Cheney Company,
Winchester,
Massachusetts.

Gentlemen:-

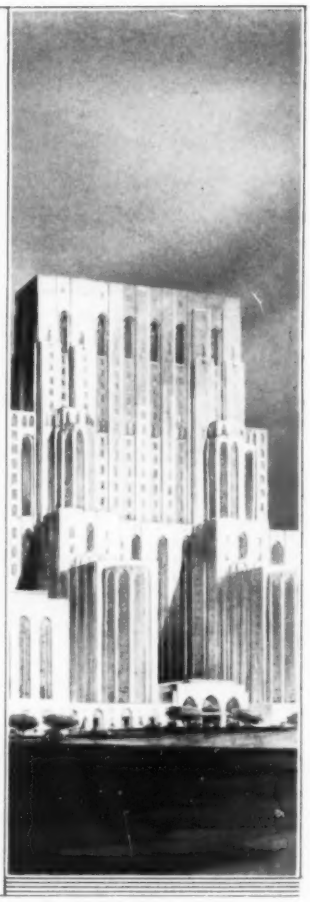
Recently I have completed some tests on Cheney Interlocking Wall Flashing. These experiments showed definitely that the mortar does make a positive mechanical bond with this type of flashing.

A brick panel was built, 12 inches thick, 36 high and 42 long and Cheney Flashing was carried entirely through the wall just above the roof line. Two angle irons were built into the top of the panel to provide additional leverage, and the bottom of the panel was securely fastened. After the panel had been exposed to the weather for 28 days, a rope was fastened to the angle irons and passed over a pulley to a platform of known weight upon which bricks were placed one by one. The panel finally broke, and the test showed that the wall had a modulus of rupture of 27 pounds per square inch. Before the wall could be pulled over, the mortar extending into the keys had to be sheared off, indicating an effective mechanical anchorage.

The force required to pull the panel over was equivalent to that exercised by a wind blowing with a velocity of 264 miles per hour, the full pressure of which was directly against the wall. Calculated in the same way, the Cheney Flashing would withstand a wind velocity of 1490 miles per hour under a six inch coping stone.

These figures are conservative, as you must bear in mind this panel was only 42 inches long and lacked the stiffening of adjacent sections of the wall and of cross walls at the ends. The slippage tendency of the wind gives an additional factor of safety.

Very sincerely,
F. O. ANDEREGG



PROTECTED WITH
CHENEY
THRU-WALL FLASHING
EMPIRE STATE BUILDING
Architects: Shreve, Lamb and Harmon.
Contractors: Starrett Bros., Inc.

PROOF

PROTECTED WITH
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THRU-WALL FLASHING
NEW YORK HOSPITAL—CORNELL MEDICAL COLLEGE
Architects: Coolidge, Shepley, Bulfinch & Abbott.
Contractors: Marc Eidlitz & Sons.

CHENEY INTERLOCKING THRU-WALL FLASHING
FORMS A POSITIVE BOND BETWEEN COURSES OF MASONRY

CONCLUSIVE PROOF that mortar and Cheney Flashing form a positive—practically unbreakable—mechanical bond between courses of masonry is contained in Professor Anderegg's Test Report—Illustrated above.

The extraordinary strength of this mechanical bond—which permits the elimination of dowels, is an additional reason why architects should definitely specify Cheney Flashing for preventing Seepage, Leaks and Efflorescence in masonry walls—for there is no "Or Equal" for Cheney Flashing.

Cheney Flashing is the only proved thru-wall flashing on the market that runs completely thru the masonry wall and forms a positive key-bond in every direction within the mortar bed.

Cheney Flashing is made of 16 ounce copper, comes to the job ready-made to exact shape—and slips easily into the mortar bed as the masonry progresses without soldering or loss of time; the ends hook together to form a continuous watertight flashing.

CHENEY SERVICE—Our engineers are available to assist in supervising installations and detailing plans and specifications. There's no obligation. Valuable information is contained in the new Cheney Catalog, which will be sent gladly on request.

At Right: Parapet above 86th floor—Empire State Building. Setting coping stone in mortar bed which was laid over the Cheney Flashing.

DOES NOT BREAK THE BOND

The CHENEY COMPANY

WINCHESTER, MASSACHUSETTS

New York Philadelphia Chicago Pittsburgh

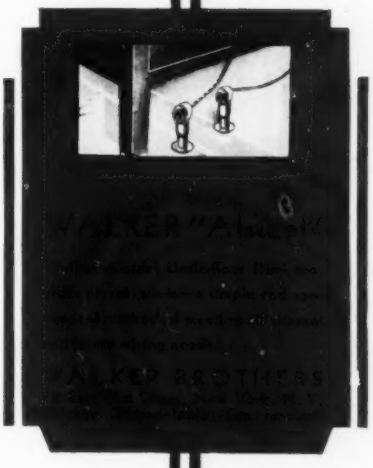
In Canada: Corporate Steel Products Limited, Montreal.

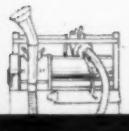
Underfloor Duct at the Start SAVES Expense later on

ONE building owner recently ripped up three floors and installed underfloor duct at his own expense in order to obtain a desirable tenant.

Another owner, who used underfloor duct on six floors when the building was erected six years ago, has now installed underfloor duct on three additional floors at his own expense.

You can meet the tenant's demands at the start and save needless expense later on—by specifying an underfloor wiring system in your original plans.





Specify UNDERFLOOR DUCT

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Above: The organ tone grille and entrance doors . . . in bronze. At the right: The grilled entrance doors and the proscenium arch grilles, both executed in bronze.

The Everlasting Beauty of Ornamental Bronze ~ by FISKE

INSPIRED by our feathered friends, the ornamental bronze work of the Lucien M. Tyng playhouse at Southampton, L. I., is another outstanding FISKE installation. This playhouse, remarkable for its architectural beauty, was designed by Peabody, Wilson and Brown. It is illustrative of the ever-increasing use of ornamental bronze by modern architects. Simple and graceful in line, the metal work blends perfectly with interior finishing and decorating.

FISKE maintains complete consultatory and design services which are gladly offered to architects interested in such work.

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DECORATIVE RAILINGS; ENTRANCE GATES; GARDEN AND TERRACE FURNITURE; ORNAMENTAL FENCING (for every purpose, country estate or industrial usage); FOUNTAINS; SUNDIALS; LAMP BRACKETS; LANTERNS; SPIRAL STAIRS; STABLE FITTINGS; BRONZE TABLETS; ARCHITECTURAL BRONZE.

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Where there's light, there's profit in real estate. California's skies and Florida's too, flow sunlight. That is the reason millions of people moved and made their homes in these sections where days are clear.

Lustraglass is clear. It is the "whitest" of all glass made for windows. It brings indoors the sun's rays, ultra-violet, infra-red and daylight too as *nature* blends them . . . Its use assures bright, cheerful interiors which rent or sell quicker and bring a larger revenue.

Moffett Apartments, Hollywood, Cal., Leland A. Bryant, Architect. Windows by Soulé Steel Co., Glass by Thompson Glass & Paint Co.

LUSTRAGLASS
FLAT-DRAWN

transmits a substantial amount of the shorter ultra-violet rays of sunlight at 313 mu. and more daylight . . . yet *costs no more* than any good window glass.

As a building material, glass is not expensive. Use plenty of it because it adds beauty and sales appeal to any building, and be sure to use Lustraglass, it *costs no more*. The booklet A-430 explains why Lustraglass is a better looking, more efficient window glass. Write for it.

AMERICAN
WINDOW GLASS CO.

FIFTH AVENUE PITTSBURGH, PA.

STURTEVANT ANNOUNCES *flexibility* IN UNIT VENTILATION!

A NEW UNIT THAT PROTECTS TODAY'S INVESTMENT AGAINST TOMORROW'S CHANGE

WHAT IT MEANS TO YOU

To the Architect, Engineer and Contractor — the Sturtevant FLEXIBLE Unit Heater-Ventilator provides standardized equipment that can be simply arranged to exactly suit the requirements of a particular building or service.

To the Building Owner or Board of Trustees—the Sturtevant FLEXIBLE Unit Heater-Ventilator safeguards an investment in ventilating equipment against future changes in law, practice and personal preference. At negligible cost it can be simply rearranged after installation.

LEADERSHIP is again exhibited by Sturtevant with the presentation of a new *Flexible* Unit Heater-Ventilator. The development of standard unit ventilation equipment that can be arranged to function in harmony with any of several objectives, constitutes the greatest advance since the invention of unit apparatus.

Flexibility is required in unit ventilation equipment to satisfy the varying ventilating laws, practices and preferences of the present time. The different approaches to the same result—human health, comfort and efficiency—can all be made with the Sturtevant *Flexible* Unit Heater-Ventilator.

Flexibility is needed, also, if an investment in unit ventilating equipment is to be safeguarded against the possible changes of tomorrow. Ventilation is a science which is making rapid forward strides. As it advances, law and practice will undergo revision. Equipment must be flexible or it may become obsolete. The Sturtevant *Flexible* Unit Heater-Ventilator is so designed that after installation, if desired, it can be easily and economically converted to function in a different manner, to comply with new laws or practices.

At this time, Sturtevant also announces another exclusive development — the Sturtevant Self Contained Automatic Temperature Regulator—which can be obtained, when desired, only in Sturtevant *Flexible* Unit Heater-Ventilators. It is an extremely sensitive, simple and reliable thermal control element which is mounted completely in the unit cabinet. It requires neither electrical nor pneumatic connection.

Because of their signal importance, these Sturtevant achievements in the field of unit ventilation merit your complete investigation and most serious consideration. At your request a Sturtevant Engineer will provide full details. Or we will send a copy of our specially prepared Catalog No. 377 for your study.

B. F. STURTEVANT COMPANY

Main Offices: HYDE PARK, BOSTON, MASS. CHICAGO, ILL., 410 No. Michigan Ave., SAN FRANCISCO, CAL., 681 Market Street. *Branch Offices in Principal Cities.* Canadian Offices at Toronto, Montreal, Galt. Canadian Representative: Kipp Kelly, Ltd., Winnipeg.

EASILY ARRANGED TO SUIT SPECIAL CONDITIONS
SATISFIES ALL LAWS, ALL PRACTICES, ALL PREFERENCES

Arrangement 1—Delivers all out-of-door air, at all times.

Arrangement 2—Delivers all out-of-door air when room is occupied. Recirculates and heats all interior air when room is unoccupied, to accomplish quick, economical heating.

Arrangement 3—Delivers 50 per cent out-of-door air in constant quantity and at the same time recirculates 50 per cent of the room air. When room is unoccupied it recirculates and heats 100 per cent of the room air.

Sturtevant REG. U.S. PAT. OFF. *the Flexible* **Unit Heater-Ventilator**

SUPPLIES OUTDOOR AIR • FILTERED CLEAN • AND TEMPERED

Imperial

MOTORS

that make no NOISE

Imperial Motors—as good as the best in all other respects—are especially good because they are expressly designed and built to eliminate NOISE . . . you can neither hear them run nor detect vibration outside the room in which they operate . . . NOISE is out of place anywhere . . . particularly so in hospitals, schools, churches, theaters and the like . . . leading architects are standardizing on Imperial for operating ventilating systems, pumps, elevators, conveyors, machinery, etc., because they do just what they are built to do . . . if your files do not contain complete information on Imperial Motors, please send for the data.

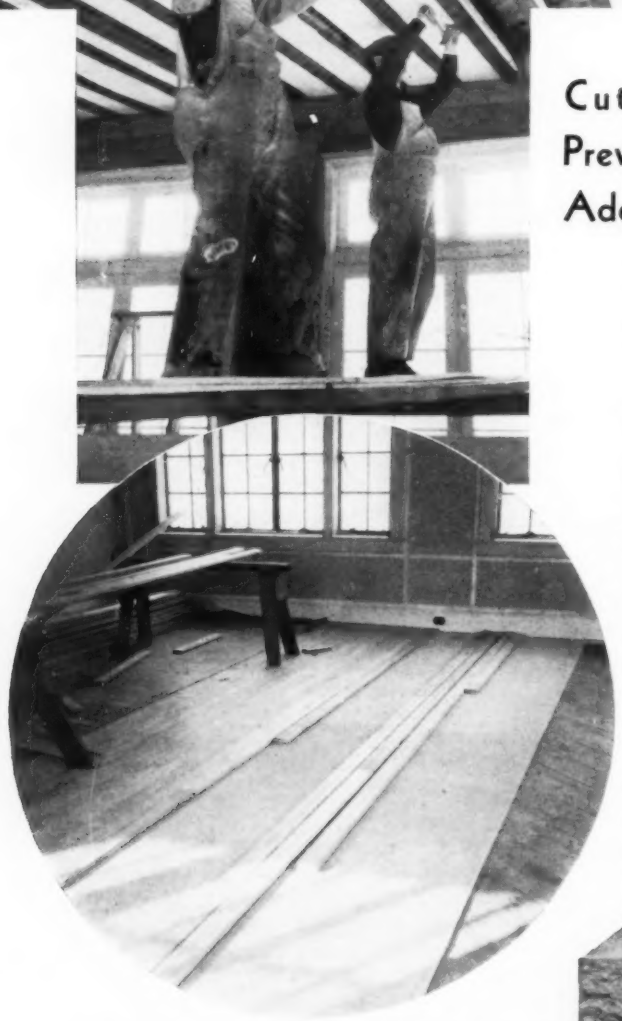
HOW TO SPECIFY

"Special importance will be attached to the noiseless operation of all motors. Motors shall be tested for magnetic hum. When connected and erected in the manner approved by the manufacturer, these units shall cause no noise or vibration perceptible in any portion of the building outside the room in which they are placed. In the event of any motors causing objectionable noise, the contractor shall remove such machines and replace them with others that do not cause objectionable noise. The Architect shall decide whether the noise is objectionable or not."

THE IMPERIAL ELECTRIC CO.
Akron, Ohio

Imperial Motors are QUIET

IN-CEL-WOOD INSULATION PAYS IN MANY WAYS



Cuts Heating Costs 25% to 40%
Prevents Mid-Summer, Mid-Winter Discomfort
Adds to the Resale Value of the Building

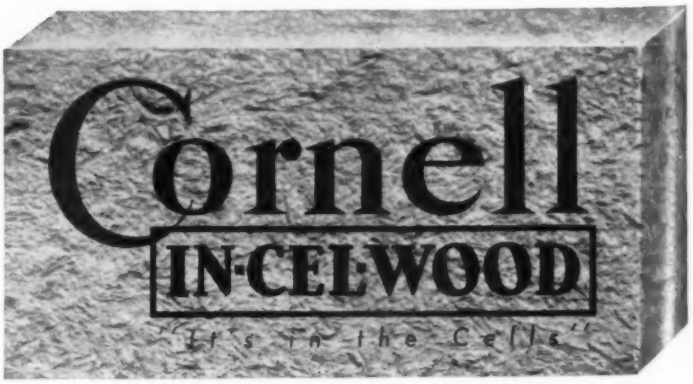
Buildings insulated with Cornell In-Cel-Wood can be heated at a cost ranging from 25% to 40% less than that for buildings similarly constructed but which lack this protection. In-Cel-Wood, being light in weight (only 600 lbs. per 1,000 sq. ft.), has millions of dead air cells to retard the passage of heat. It is *full ½ inch thick*. Its thermal conductivity is only 0.32 B.T.U.

This strong, rigid board may be used as sheathing and insulation in outer walls, as insulation under roofing, above ceilings and under flooring and as insulation and wall covering on interior walls. In-Cel-Wood is made entirely from *new, thoroughly seasoned* wood and is completely impregnated against moisture and other deteriorating elements.

In-Cel-Wood Lath (regular In-Cel-Wood with special ship-lapped edges) is an unequalled plaster base. It grips plaster with a pull of more than 2,000 lbs. per square foot.

In-Cel-Wood is supplied in standard sizes—4 x 6, 7, 8, 9, 10 and 12 feet—all *full ½" thick*. In-Cel-Wood Lath is 18" x 48", full ½" thick. For samples and complete details write Cornell Wood Products Company, 307 North Michigan Avenue, Chicago, Illinois.

In-Cel-Wood, besides being an efficient heat insulator, is an unsurpassed sound deadener for use in walls, ceilings, partitions and floors. When used in floors it should be placed between the rough flooring and the finished flooring as shown above.



Radiators that fit into any wall!

Arco Enclosures that suit each room's decoration!

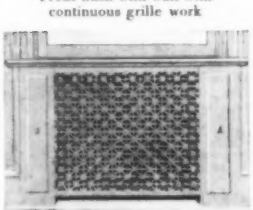
Handsome, permanent and inexpensive, the new Arco Enclosures are especially adapted for recessed radiators. They are easily installed . . . permit ready access for cleaning and adjusting . . . allow the maximum useful heat output from the radiator. There is a design for the architectural and decorative scheme of any room.

The new Arco Radiator is the ideal companion for the Arco Enclosure. It occupies one-third less space than former models, retaining the same heating output, and is easily recessed into the wall, under the window. Here is the answer to the demands of the architectural profession for maximum heating effectiveness with minimum space requirements plus cleanliness of performance.

We shall be delighted to send full information, and render any possible assistance.

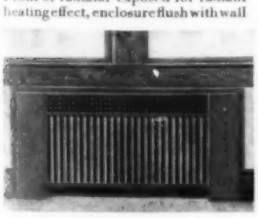
TYPE HA (pat. pending) Inlet and outlet grilles in front

TYPE AE (pat. pending)
Front flush with wall with continuous grille work

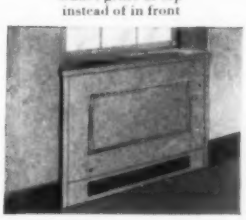


TYPE AA (pat. pending)
Enclosure front flush with the wall with baseboard continuous

TYPE AG (pat. pending)
Front of radiator exposed for radiant heating effect, enclosure flush with wall



TYPE HB (pat. pending)
Outlet grille at top instead of in front



TYPE AD (pat. pending)
Fanfom radiator exposed for radiant heat

TYPE AB (pat. pending)
Front flush with wall and extending directly to the floor

The Arco Radiatherm

an independent, automatic temperature control for every room.

For all two-pipe steam or vapor systems.

Each Thursday Night

the Arco Birthday Party is broadcast over a nation-wide hook-up from Station WEAF, New York. Good wit, good humor, good music . . . you'll enjoy it. 9 P. M. Eastern Daylight Saving Time.

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AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

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Central Depositors Bank Building, Akron, Ohio. Walker and Weeks, Cleveland, Ohio, Architects

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Architects Specify Williams Pivot Sash for Modern Buildings

WALKER AND WEEKS, Cleveland, Ohio, architects who designed the Central Depositors Bank Building at Akron, Ohio, have recommended to their clients and used Williams Reversible Window Equipment continuously for over 11 years.

They are typical of prominent architects all over the country who specify this modern window equipment for office buildings, hospitals, schools, institutions, apartment buildings, and every other type of structure where low cleaning costs and controlled ventilation are a consideration.

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For 27 years manufacturers and installers of Reversible Window Equipment

Any employee can clean these modern windows from the inside—quickly, economically, SAFELY.

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WINDOW EQUIPMENT
Clean Your Windows from the Inside

View of Wyomissing Industries, near Reading, Pa.

These Plumbing Fixtures furnished by Reading Foundry & Supply Co.

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for Factory Plumbing

LEADING architects place Te-pe-co All-Clay Plumbing Fixtures in their specifications for factories as a matter of course.

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Te-pe-co has always carefully studied the needs of factory installations. We have designed fixtures to economically—quality considered—meet the requirements where sanitary facilities must be provided for large groups of workers. Many years of experience in this work is at your service. We will gladly help you solve such problems.

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TE-PE-CO
ALL-CLAY PLUMBING FIXTURES

View of the famous dome of St. Paul's Cathedral, London.—(Photo by Ewing Galloway)

Inset—Sir Christopher Wren, the architect, from a portrait by Sir Godfrey Kneller.

"and the ROOF shall be of ETERNAL LEAD"

Thus over 200 years ago, Sir Christopher Wren specified the roofing material for that famous architectural masterpiece —St. Pauls Cathedral, London.

NO DOUBT in all England's history no architect achieved such outstanding fame—under so many adverse conditions—as did Sir Christopher Wren. Although a distinguished mathematician and astronomer, Wren's outstanding architectural accomplishments are the real reason for his greatness.

It was the great London fire of 1666, which completely destroyed St. Paul's, that gave Wren the opportunity of displaying his architectural talents. His first proposal, however, to remodel St. Paul's "after a good Roman manner" and not "follow the Gothic rudeness of the old design" met with objections from Dean Sancroft and the chapter. Another plan, approved by the dean and chapter, was ordered carried out in 1675. Not satisfied with the second design, Wren secured permission from King Charles II to alter it as the building progressed. Proceeding on this basis the finished work bore little resemblance to the approved design, being superior in practically every point. Started on June 21, 1675, the cathedral was completed in the year 1710.

The dome of St. Paul's fashioned after the Pantheon at Rome is typical of Wren's style. With limited capital he would concentrate on some particular part or feature, such as a spire or dome, rather than squander money in an attempt to make the whole of a building remarkable.

In specifying lead for the roof of St. Paul's, Wren acted on knowledge gleaned from prolonged study of ancient buildings throughout Europe. He *knew* lead's permanence, its resistance to rust and the elements were facts as old as mankind itself. He wanted St. Paul's to last. That's why even today, despite repaired walls, old St. Paul's stands as the monumental masterpiece of all Wren's architectural achievements.

In Leadclad you have the lasting durability of lead, as specified by Wren, plus the lightness, strength and rigidity of steel.

Made in all standard roofing and drainage forms, and is perfectly adapted to any roofing need.

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CRYPT, NATIONAL SHRINE OF THE
IMMACULATE CONCEPTION
WASHINGTON, D. C.

MAGINNIS & WALSH, Architects
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VAULTED ceilings in Guastavino Timbrel Arch Construction, designed to carry extremely heavy loadings in supporting floor and altar above. This all masonry construction (no steel) can be designed to meet unusual conditions in carrying heavy loads over large spans.

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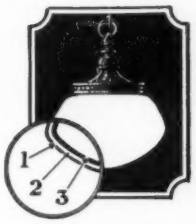
R. GUASTAVINO CO., OF CANADA, Ltd., New Birks Building, Montreal, P. Q.

THOUSANDS
of moulds . . .

for 100% lighting efficiency

MOULDS for magnificent Celestialite globes . . . thousands, to answer every lighting need . . . to adapt to every type of interior and exterior! The skill required in the fashioning of the moulds demands all the extraordinary craftsmanship that produces the Celestialite globes. The range of style and design available in Celestialite is nearly endless. Indeed, moulds are frequently "custom-made" to meet individual taste or unusual settings.

Architects have found in Celestialite the fortunate combination of high quality lighting and distinguished globe design to meet the demands of any interiors. For that reason, great buildings of every character—offices, universities, industrial plants, hospitals, theatres, and department stores—have turned to Celestialite as the ultimate answer to the problem of interior lighting.



CELESTIALITE'S Three Layers
The Reason for its Superiority

[1] A layer of crystal-clear transparency—for body and strength.
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Santa Fe Building, Dallas Texas, one of the many fine buildings lighted with Celestialite. Write us at once for information that will secure you as fine a lighting system. We will also send you a free fragment of Celestialite, showing its three-layer construction.

CELESTIALITE

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"NEXT TO DAYLIGHT"

Gleason-Tiebout Glass Company, 200 Fifth Avenue, New York City

Swimming pool built for Camden County Park Commission, Camden, N. J. Outside walls dampproofed and expansion joints made water tight by filling with Headley Emulsified Asphalt.

General Contractor, Eugene F. Verga, Camden, N. J.

To Waterproof Reservoirs, Spray Ponds, Swimming Pools, Basins,

Use HEADLEY EMULSIFIED ASPHALTS

APPLIED outside, inside or between base and concrete finishing course, either alone or as a binder for a saturated fabric membrane, and used as an expansion joint filler, Headley Emulsified Asphalts can be depended upon to keep water from leaking through the structure, as the impervious layer of tightly bonded asphalt residue forms an everlasting seal.

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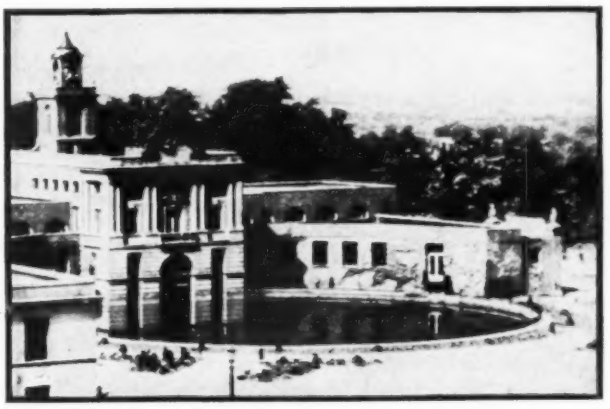
In maintenance work, application to moist surface improves rather than impairs the bond, and readiness of the material for use cold, exactly as it comes from the container, is a great convenience.

An inside coating of Headley Emulsified Asphalt does not become porous or collect slime from brines, and is unaffected by salt, acid or alkaline content in the water.



For maintenance too!

The concrete finishing layer in this water pool at National Electric Lamp Plant of General Electric Co., Nela Park, Cleveland, O., cracked, water seeped through, and the level could not be maintained. The finishing course on bottom and sides was completely removed, the surface of the base course scarified and coated with Headley Emulsified Asphalt, and a new finishing course 1½ in. thick was applied. No further evidence of leakage has been noted.

Write for literature, standard specifications, free sample and, if desired, engineering advice. See catalog pages in Sweet's, A.S.M.E., Mechanical and Chemical Engineering Catalogs, Stevens Specifications, etc.

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Headley Emulsified Products Company,
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Please send Bulletin 330 and free sample of Headley Emulsified Asphalt.

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Emulsified Asphalts for Industrial Uses
Largest Manufacturers since 1908
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Boston	Erie	Milwaukee	New Orleans	South Bend	Wilmington
Buffalo	Fort Wayne	Minneapolis	Omaha	Springfield, Mass.	Worcester, Mass
				St. Louis	Youngstown

The wear of hand after hand—day after day

leaves Bakelite Molded knobs unmarred

Countless hands grasping and turning door knobs; doors swinging wide and slamming shut. Such is the service doors receive in schools, offices, institutions. They need knobs that are durable, that won't tarnish or peel; knobs that are strong, that won't dent or chip—knobs of Bakelite Molded. Bakelite Molded door knobs eliminate the trouble and expense of constant polishing, for they will not stain or corrode. Their color goes all the way through and will not wear off. In addition, these knobs are easy to keep clean, making them especially desirable for doors in constant use.

Beside door knobs and other hardware items, Bakelite Molded is found in switch and outlet plates, and many other wiring devices. Bakelite Laminated in a variety of colors and finishes is an excellent modern medium for decorative expression in panels, trim, and on counters. Write for further information about Bakelite Materials in the building industry. Ask for Booklets 71M and 71L.

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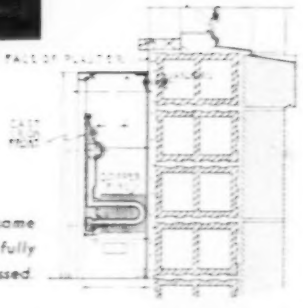
THE MATERIAL OF A THOUSAND USES

MODERN RADIATORS FOR MODERN BUILDINGS

The Racine County Court House

Architects: Holabird & Root, Chicago

Heating Contractors: Wenzel & Henoch, Milwaukee



nstalled on the wall, this same radiator can be either fully recessed or partially recessed

USING proved principles of heating and employing old, familiar materials, Modine has produced a Radiator that is *new*. • It is the modern form of radiator that keeps heating equipment in step with the most modern building design and the emphasized demand for greater economy in installation and operation. • Important among its many advantages are its heating characteristics. Its sturdy, cast iron front retains heat and prevents rapid fluctuations in room temperature while its copper convection unit provides the quick response that is so characteristic of pure convection heaters. • There are many other real advantages in the new radiator that combine convected and radiated heating in proper balance and in a single, space economizing unit. • We will be glad to send you complete data on request.

MODINE MANUFACTURING COMPANY

Racine • *Offices in Principal Cities* • Wisconsin

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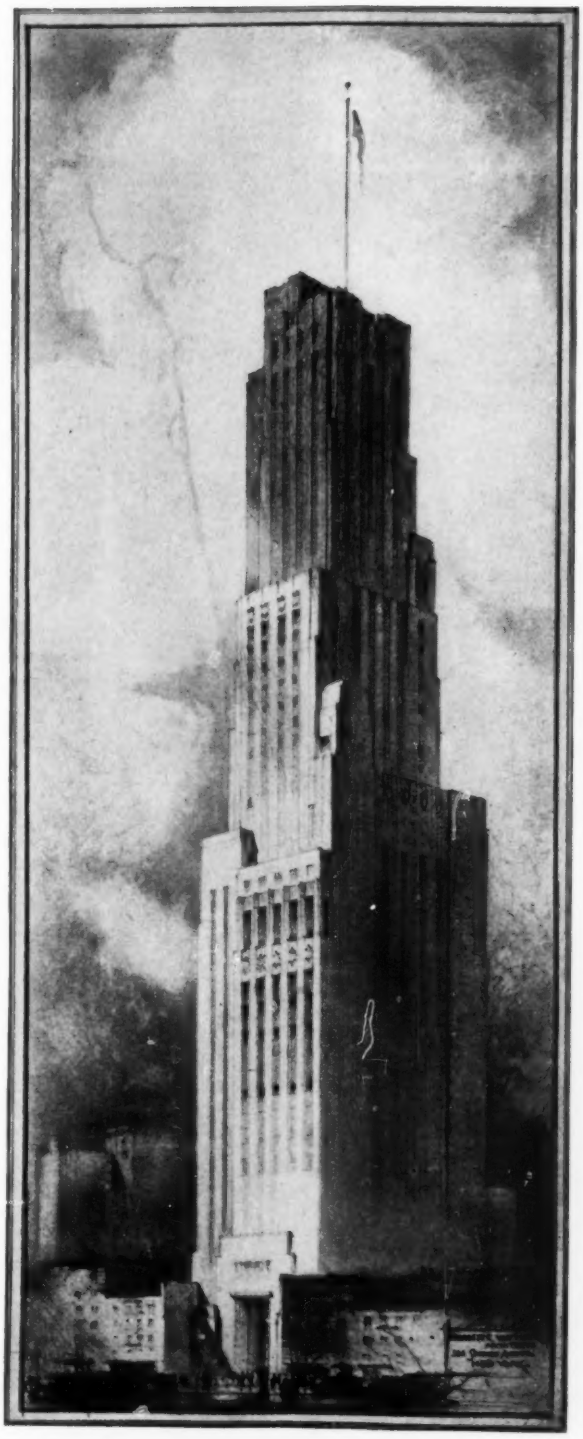
ANOTHER TIGER JOB!



Here again the architects considered the tenants who would live in this majestic building, who would be looking daily at its walls and ceilings and who, therefore, must be pleased continually to make it a paying investment. So, the interior of the Downtown Athletic Club, New York City, like other American architectural masterpieces, was finished with TIGER . . . the lime that

"Spreads like warm butter"

Every room and corridor is a tribute to the discriminating owners who utilized the creative genius of Starrett & Van Vleck, architects . . . the recognized construction ability of Thompson-Starrett Co., general contractors . . . and the superior craftsmanship of Jas. J. Conroy & Son, Inc., plastering contractors.

Made just a little better than seems essential, the FAMOUS Tiger White Rock Finish has established a standard which is individual unto itself.

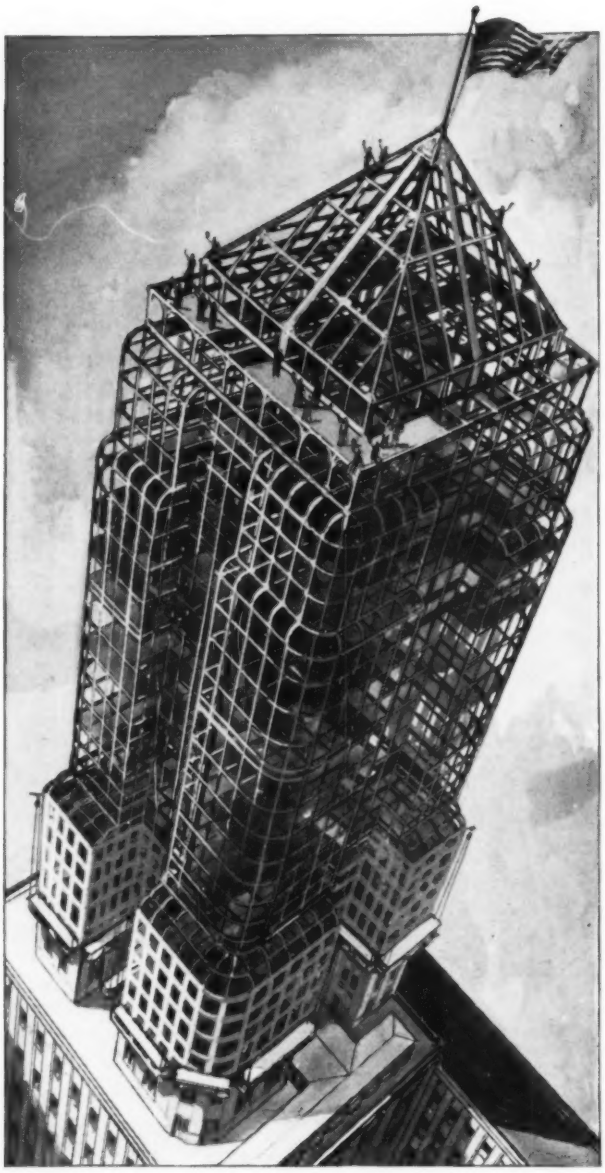
THE KELLEY ISLAND LIME & TRANSPORT CO.
World's Largest Producer of Lime
LEADER BUILDING CLEVELAND, OHIO

The Famous TIGER FINISH

AND . . . . *Tiger Mason's . . . Tiger Agricultural . . . Tiger Chemical . . . Tiger All-Purpose Hydrate in 10-lb. packages . . . . and High Calcium and Magnesium Lump Limes . . . . Also Quickslake (ground quicklime) in paper-lined jute sacks.*

The Flag is Up ★

BUT THE STEEL WORK'S JUST BEGUN



UP with the flag, the structural man's symbol of a job well done—the mighty steel skeleton of a giant building is completed.

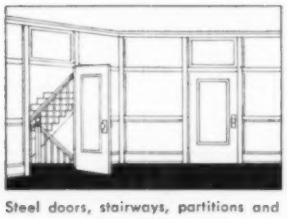
But, many tons of steel are yet to come before the building is ready for occupancy.

Miles of trim, hundreds of doors, partitions; tile, floors, roof decks, all of steel will be installed; thousands of steel desks, files and other pieces of office equipment to speed business along; tons of steel air-conditioning equipment.

Steel is the metal that keeps abreast of our changing needs; that takes the inventive thought and molds it into a practical reality.

Everywhere, steel products are superseding old wasteful types; saving on initial costs, eliminating refinishing with beautiful baked on finishes; cutting cleaning; banishing refitting and repairing.

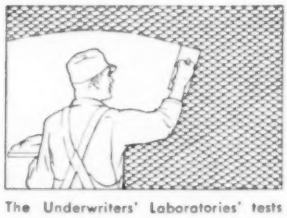
Over 5,000 different flat rolled steel products are saving life, fire loss, drudgery, health, time, depreciation, money, dirt, weight, space or upkeep. Make use of these savings. *Build in steel.* For information about any steel product write Trade Research Division, National Association of Flat Rolled Steel Manufacturers, 511 Terminal Tower Building, Cleveland, Ohio.



Steel doors, stairways, partitions and trim cannot burn. They stop or retard fire—saving lives and property.

Steel toilet and shower partitions are absolutely sanitary, pleasing in appearance and inexpensive.

Steel furniture, refrigerators, cabinets and wall tile save precious hours of labor.

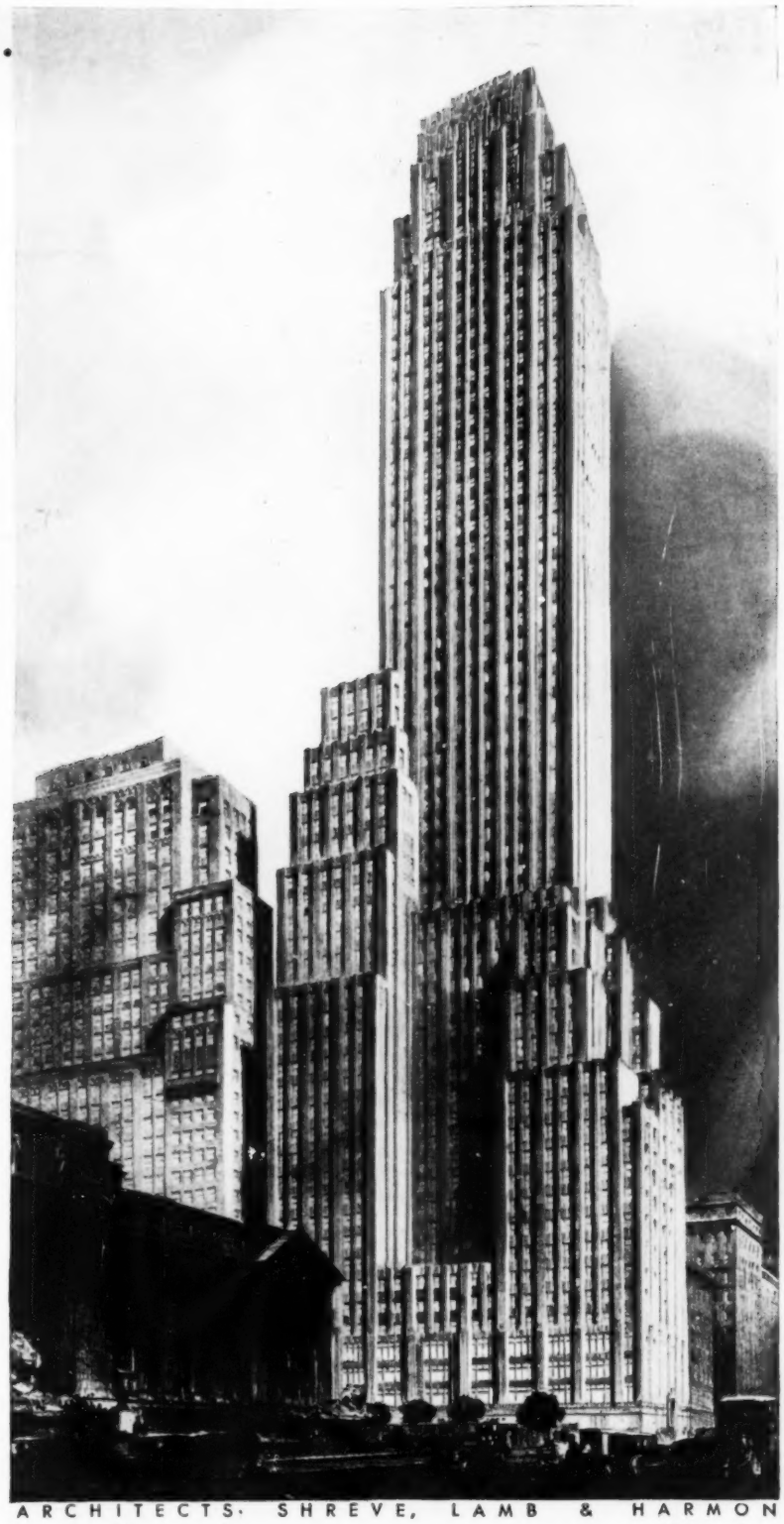


The Underwriters' Laboratories' tests prove steel lath, properly plastered, provides exceptional fire safety.

Save Space Steel Weight $ Money **with STEEL Building Materials**

500 FIFTH AVE.

NEW YORK CITY



ARCHITECTS· SHREVE, LAMB & HARMON

THE new 58-story Tower, now under construction for Walter J. Salmon by Charles T. Wills, Inc., on the northwest corner of Fifth Avenue and Forty-Second Street. Here, as in the adjoining Salmon Tower, Eleven West Forty-Second Street, all of the interior doors, trim and elevator entrances will be supplied by the

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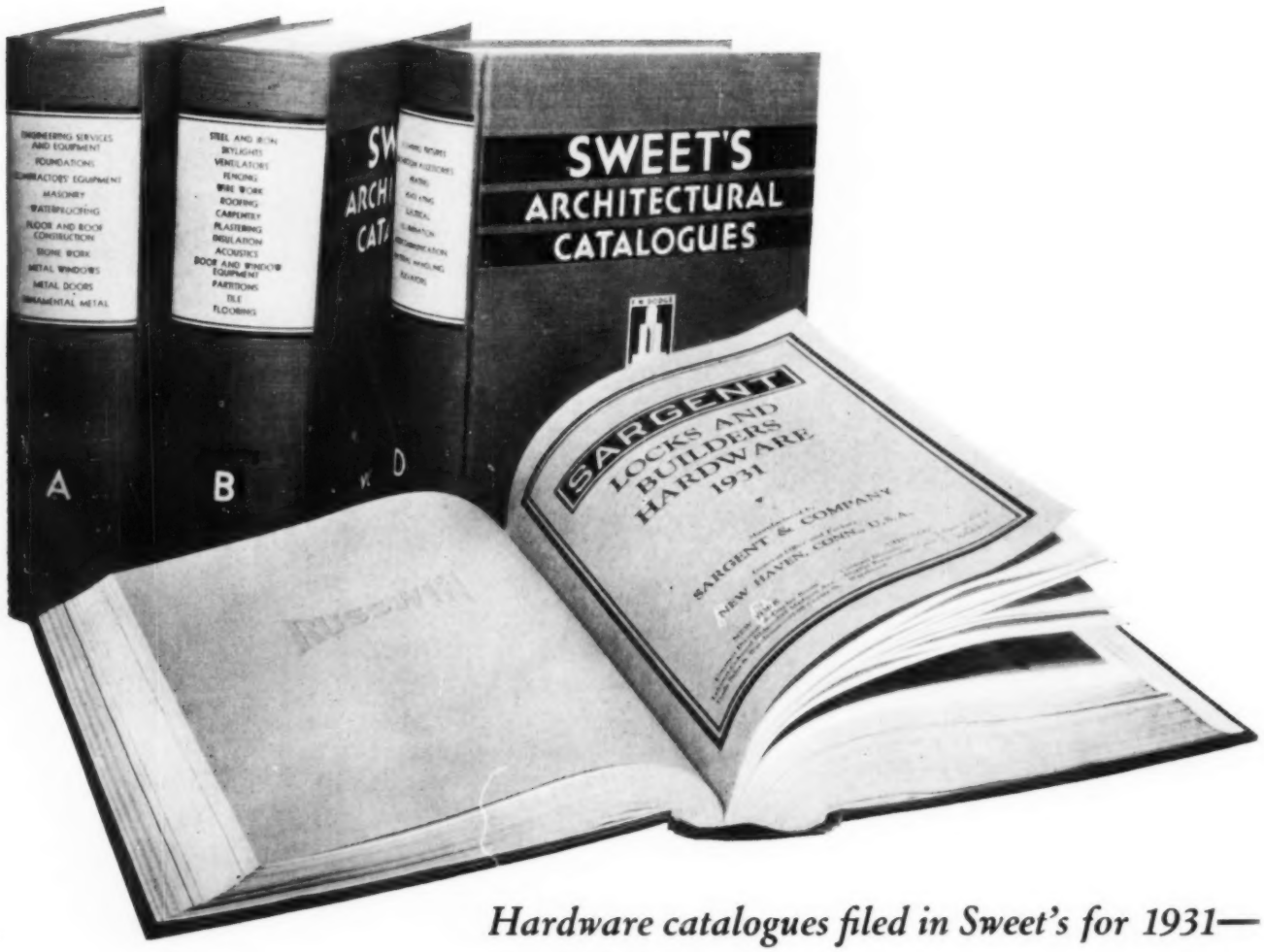

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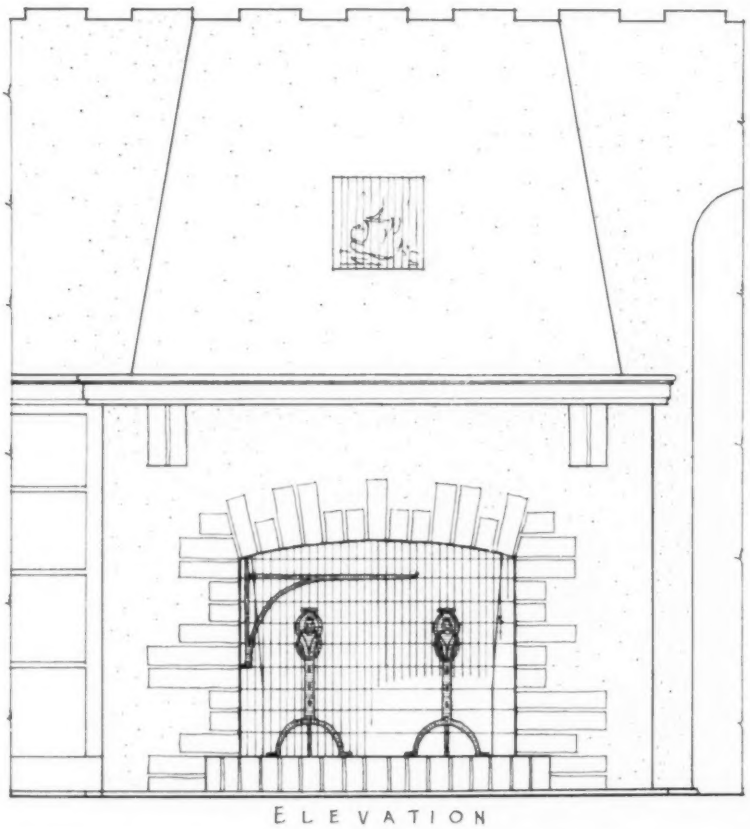

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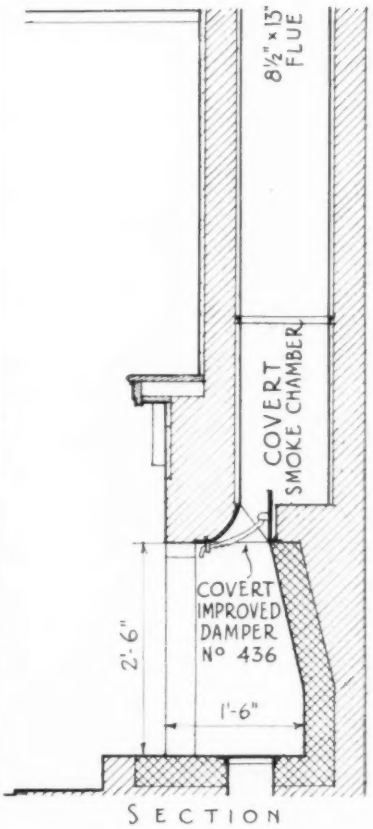

SECTION

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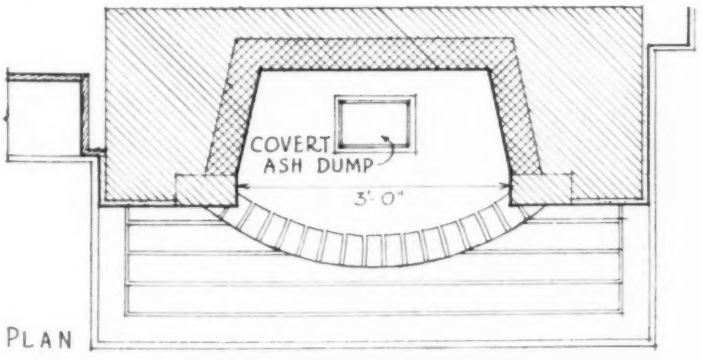

PLAN

SCALE IN FEET

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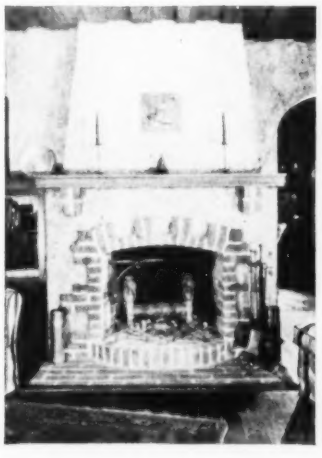

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Organization of Albert Kahn, Inc., Architects & Engineers, Detroit, Mich.

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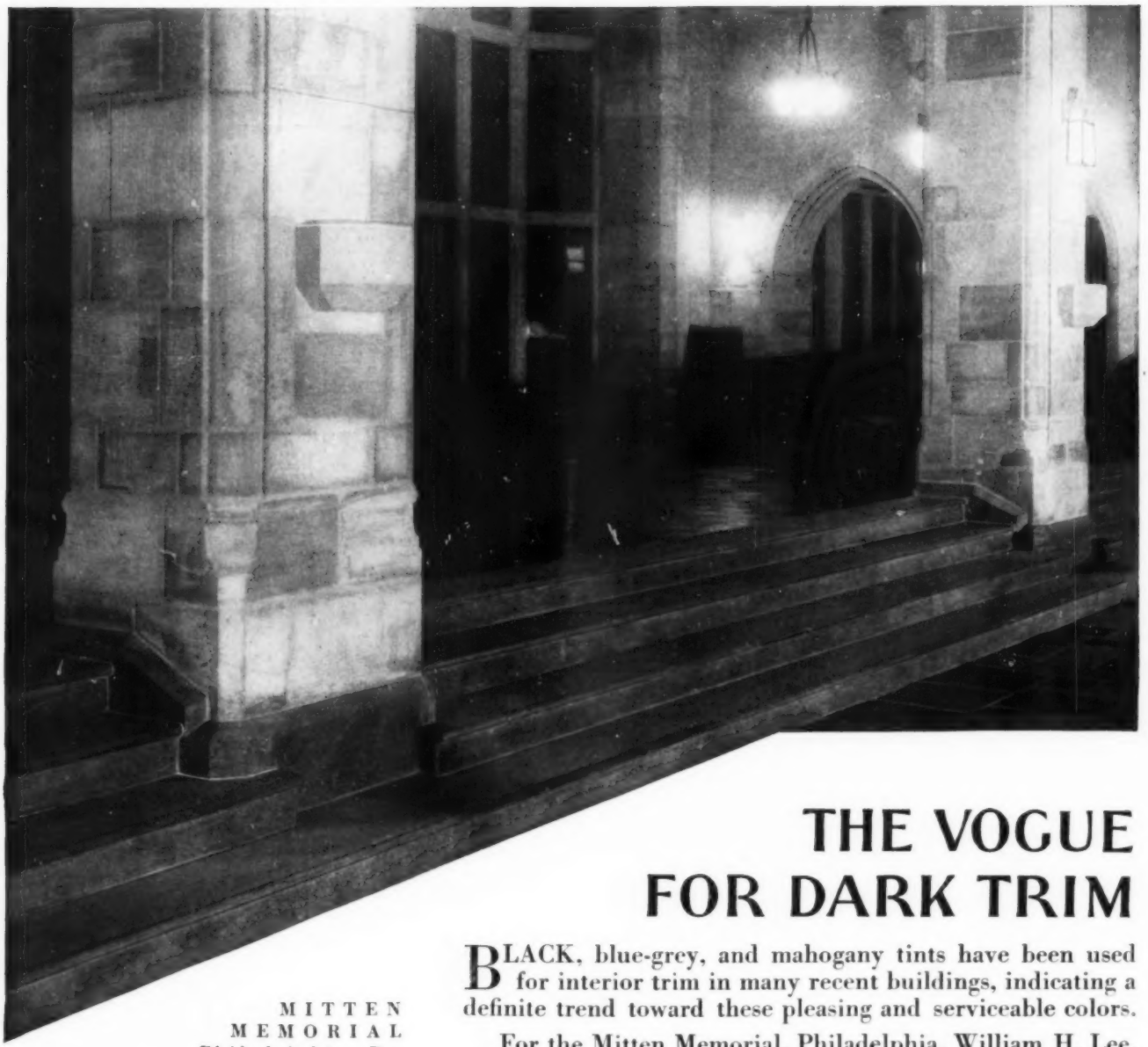

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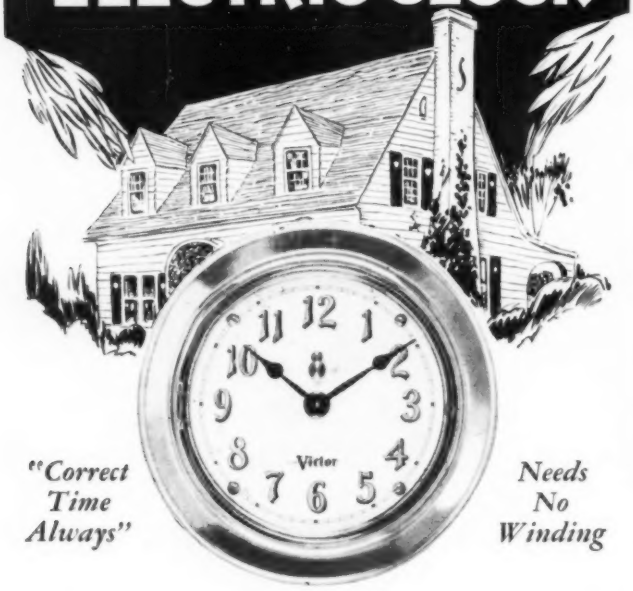

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BY

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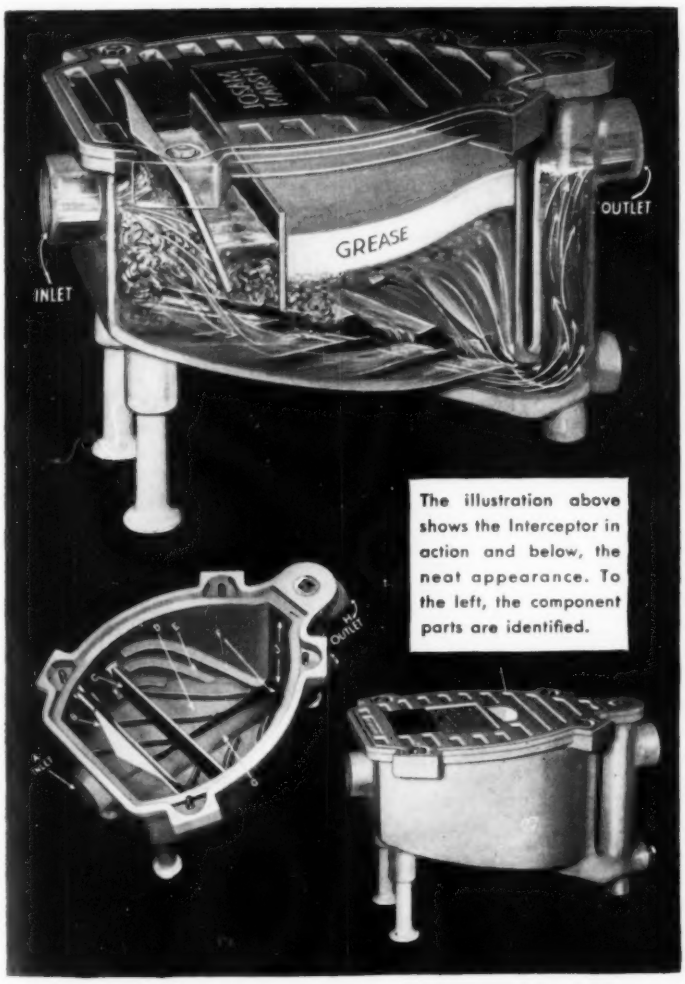

The illustration above shows the Interceptor in action and below, the neat appearance. To the left, the component parts are identified.

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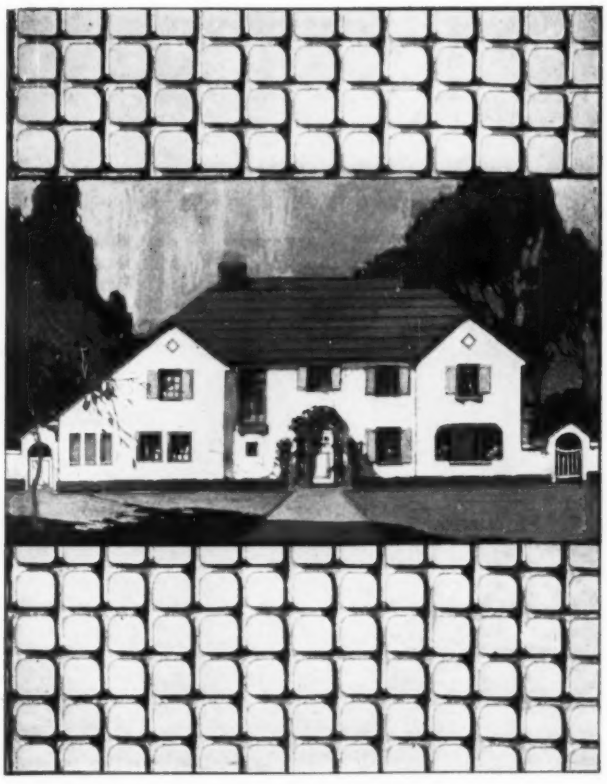

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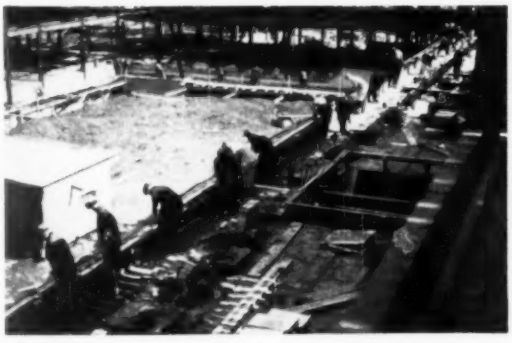

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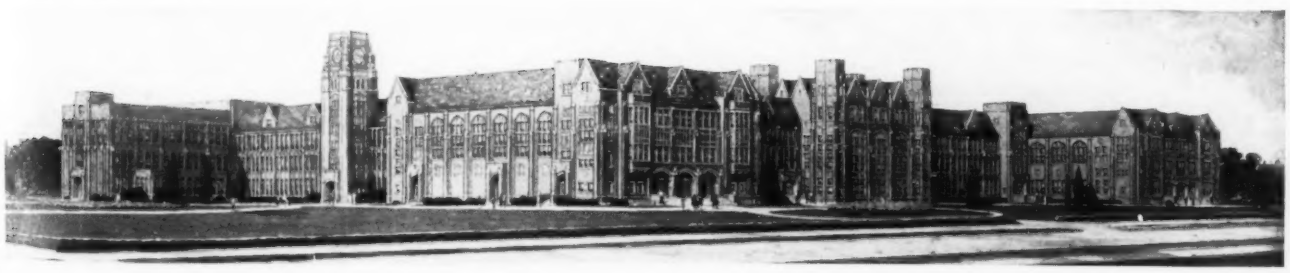

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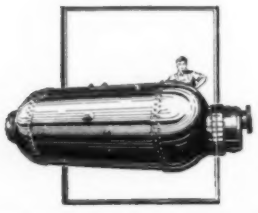

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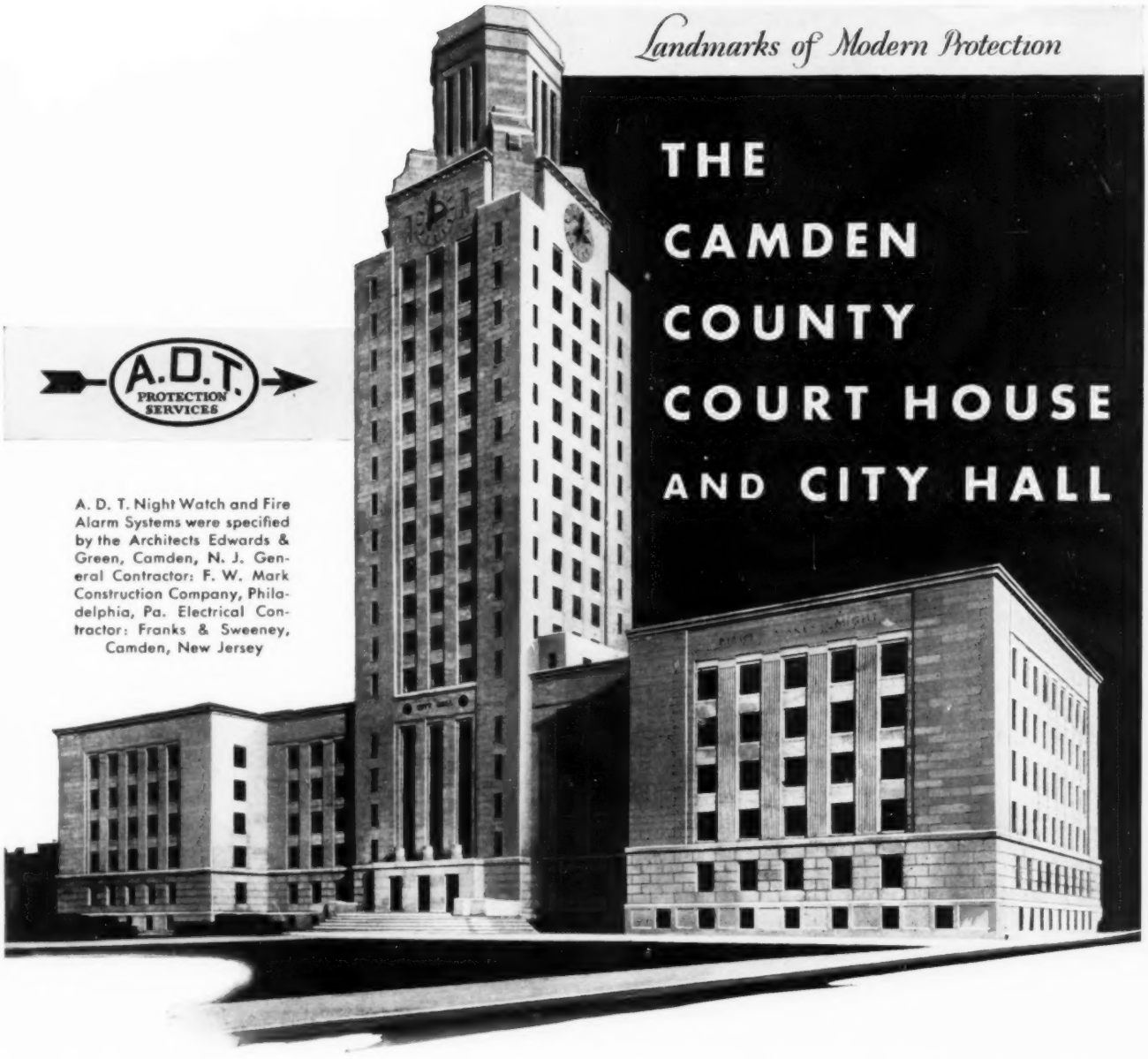

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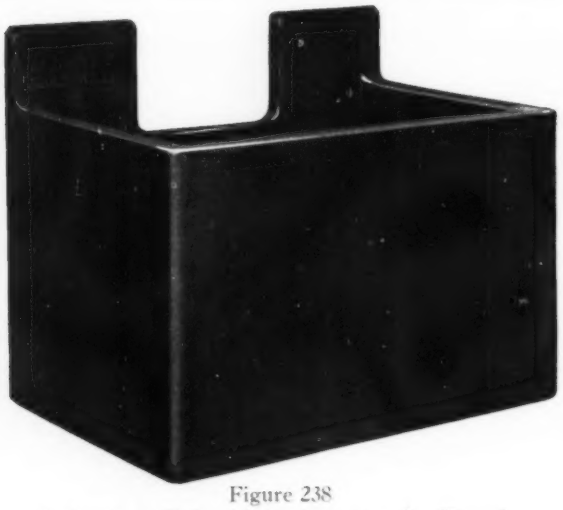

Figure 238
Laboratory Sink with Back cut out for Trough

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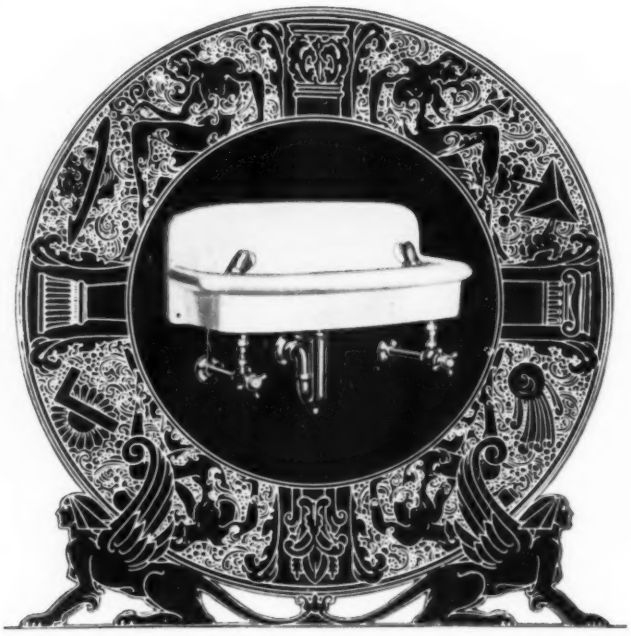

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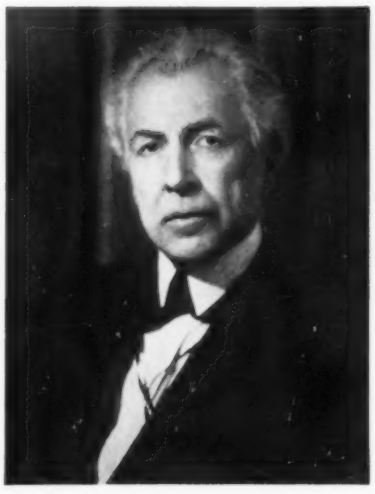

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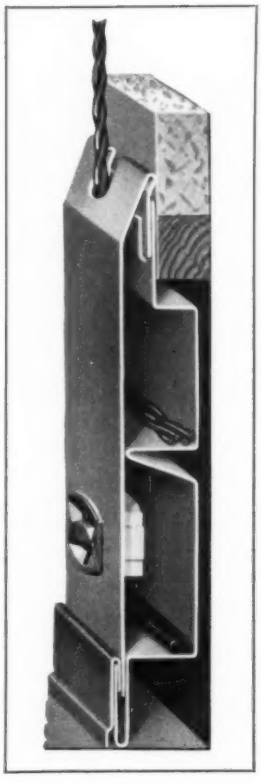

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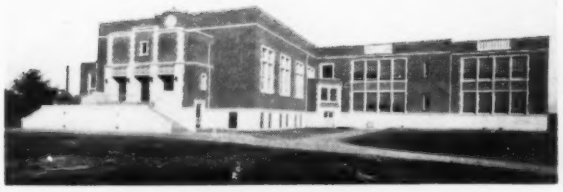
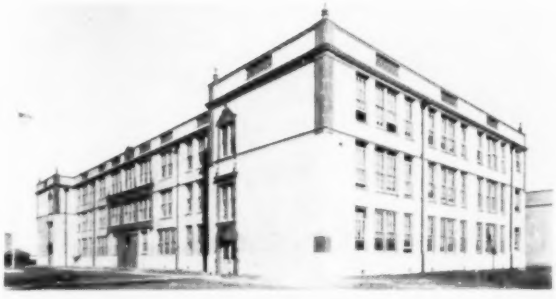


Larchmont School, Norfolk, Virginia
Architect: Carlow-Brown & Fitzgibbons
Contractor: Miller Engineering Corp.



Phillis Wheatley High School, Houston, Texas
Architect: Harry D. Payne
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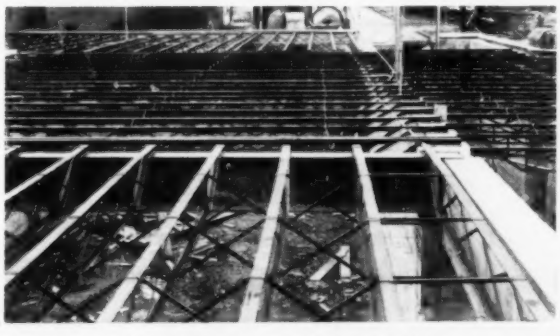

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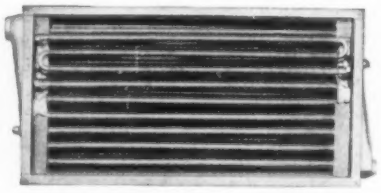

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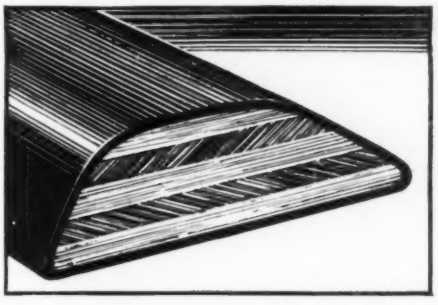

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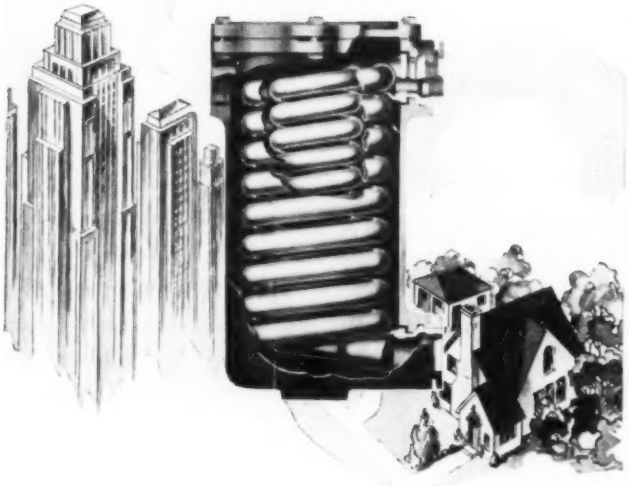

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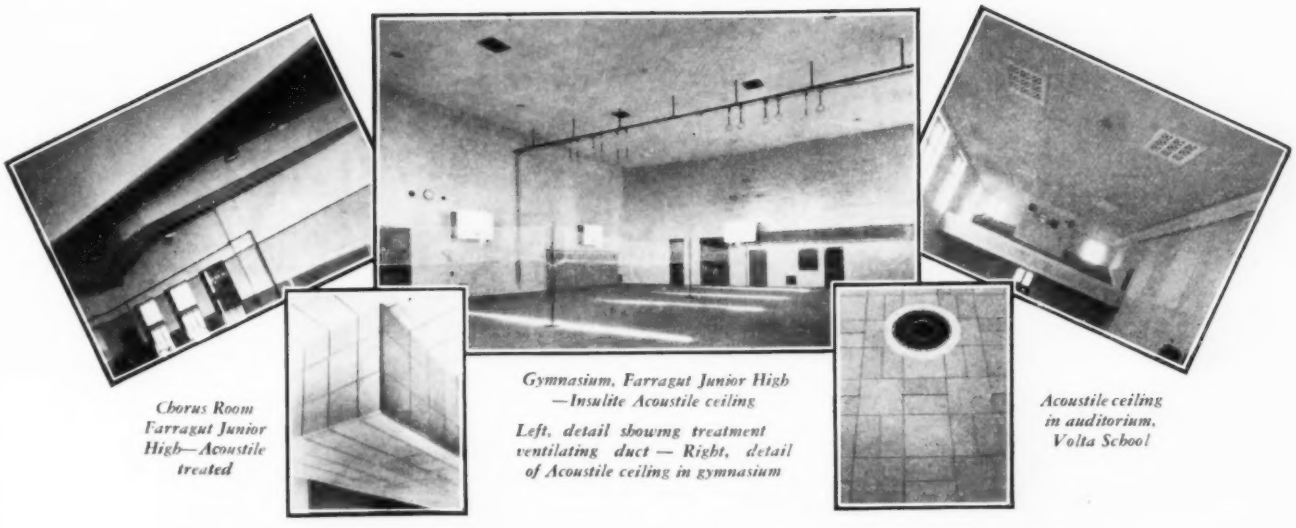

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Gymnasium, Farragut Junior High —Insulite Acoustile ceiling

Left, detail showing treatment ventilating duct — Right, detail of Acoustile ceiling in gymnasium

Acoustile ceiling in auditorium, Volta School

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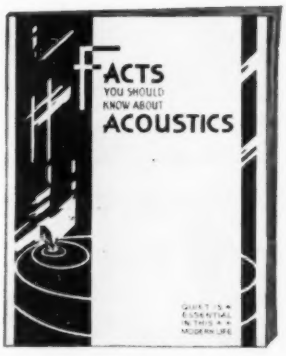

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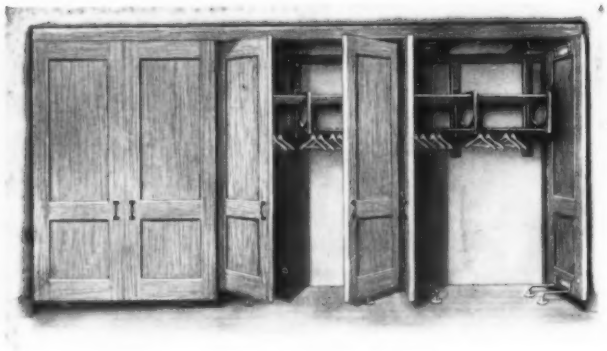

Evans "Vanishing Door" Wardrobe Class A-A, without jambs or trim

HERE is an ideal school class-room wardrobe, low in cost yet meeting every demand of the most exacting. This wardrobe is made for plaster ends, backs, and ceilings; no jambs nor trim being required. When so desired blackboards can be furnished for the doors, giving a continuous blackboard surface.

The "Vanishing Door" hinges on which the doors are hung are made with double pivoted arms and swing the doors back into the wardrobe entirely out of the way. There are no noisy tracks nor rollers to stick or bind, nor intricate mechanism to get out of order. These hinges are guaranteed to last as long as the building.

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Many types of school wardrobes are fully illustrated, described and detailed in Catalog "K". This catalog is of A.I.A. file size and can be had for the asking.

See Sweet's for 1931, Vol. C 4352

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UNIQUE DISTINCTION in this HOTEL RADIO Equipment

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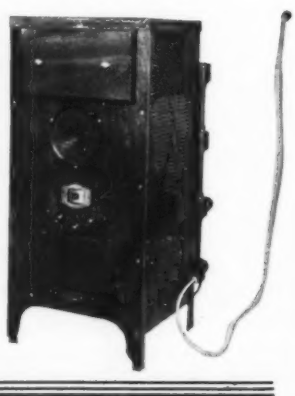
Ortho-Tone also offers their regular line of proved radio fixtures. A ceiling fixture which combines lights, fan, and loud speaker with special non-radiating features which prevent room-to-room interference, a wall panel which permits the guest a greater selection of program—these are but a few of the advantages to be found in Ortho-Tone equipment.

To further aid the profession the Ortho-Tone Company has prepared a booklet "Radio in Every Room," in which they offer the results of their experience as builders of fine hotel radio equipment. The widespread use of Ortho-Tone installation gives the manufacturers an opportunity to meet radio needs of any kind. The booklet is yours for the asking.



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No. 192 Entrance Door Handle

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This hospital stands as a testimonial to the architectural genius and to the spirit of the great Northwest.

Beautiful in its simplicity—indispensable in its service, it embodies the finest in purpose—in design and in materials.

Libbey·Owens·Ford glass is used throughout the building.

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flat drawn clear SHEET GLASS

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CEDAR SHINGLES

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WRITE FOR COMPLETE INFORMATION COMPILED FOR ARCHITECTS.

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NEWARK NEW JERSEY
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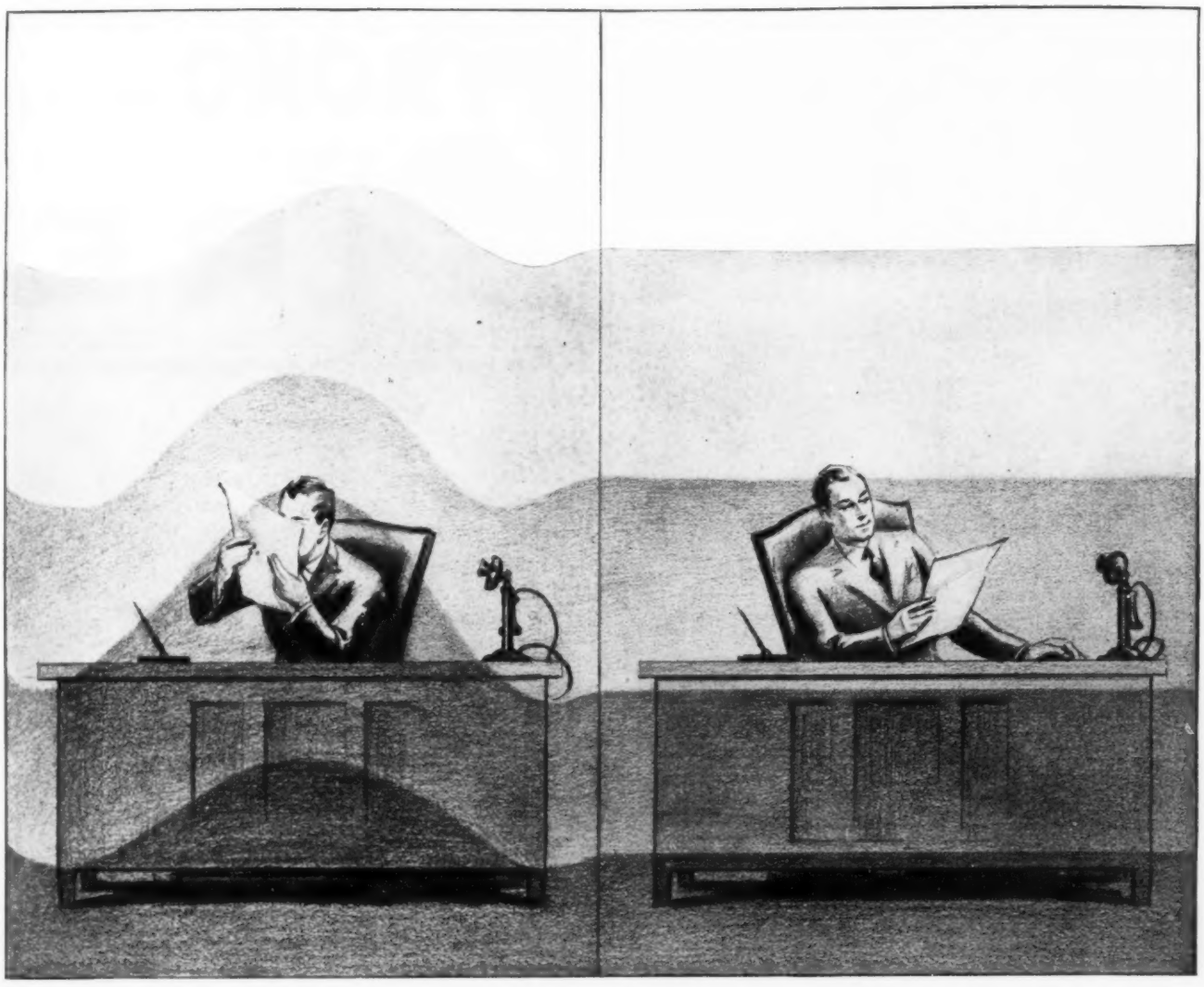
Our book of attractive Briar Hill stone homes will be sent for the asking. And, you may have free samples of the stone showing its varying colors, and the available finishes and textures.

THE BRIAR HILL STONE COMPANY
Glenmont, Ohio
See Our Catalog in SWEET'S

USE COLOR-TOO-WHEN YOU BUILD WITH STONE



STRANGE WHAT LIGHT WILL DO

if you don't have

BALANCED LIGHTING

Strange as it may seem, high efficiency lighting units do not necessarily guarantee good lighting.

Otherwise excellent lighting units may be so misapplied as to cause costly eye-strain and expensive errors—which is just what good lighting should *not* do.

But lighting, however, may be scientifically planned in advance to avoid these undesirable surprises.

Experience has shown the most useful lighting to be an adjustment of variable quantities—in a fixture, the *balance* of lighting factors against its requirements. Eight points are here involved, as the table shows.

FOR BALANCED LIGHTING, WEIGH:	
Horizontal Light	vs. Reflected Glare
Vertical Light	vs. Direct Glare
Shadow Depths	vs. Flat Shadows
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Showing how various factors balance, for best results in any given case

From this comes Balanced Lighting, the key-note of the Graybar Lighting Line — the yardstick employed by Graybar Lighting Engineers in selecting, from all types of fixtures, *the* best fixture for a given purpose.

Why not apply that yardstick to *your* lighting problems? See coupon below.

The Lincrest, with screw type holder. A popular, inexpensive fixture . . . but only one of many Graybar fixtures.

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COUPON

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Gentlemen: We are interested in knowing more about BALANCED LIGHTING.

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Trade-Mark Reg. U. S. Pat. Off.

MADE of extra quality stock, carefully inspected, and guaranteed free from imperfections of braid or finish. No adulteration to increase weight and decrease wear.

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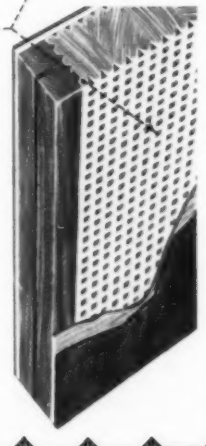
This ***Asbestos Shield*** makes ***Pyrono*** Wood Veneered doors a positive barrier to fire. ***Not one case of failure*** of a ***Pyrono*** wood door is recorded in the many actual fires which have occurred in buildings, great and small, protected by ***Pyrono*** doors. When ***Pyrono*** fireproof doors are used you retain the genuine beauty of real wood.



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Every advantage of automatic oil or gas heat at less than the cost of coal

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With GAS or OIL for HEATING —*what will you do with* WASTE and RUBBISH ?

There is one way *only* to measure the quality of a service—by the integrity and character of the firm or individual who renders the service . . . When a Kernerator is installed the responsibility for its correct installation and its satisfactory service during the years to come is not on *your* shoulders. It is assumed by a financially responsible, long established manufacturer. A man fully trained in the problems of incineration is always within telephone reach.

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INCINERATION
FOR NEW AND EXISTING BUILDINGS

See our catalog in Sweet's or write for A. I. A. folder.

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WASHINGTON ATHLETIC CLUB BUILDING

SEATTLE WASHINGTON

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Architects—Sherwood D. Ford, and Don M. Clippinger, Seattle
Engineer—Hall and Stevenson, Seattle
Contractors—Sound Construction and Engineering Company, Seattle

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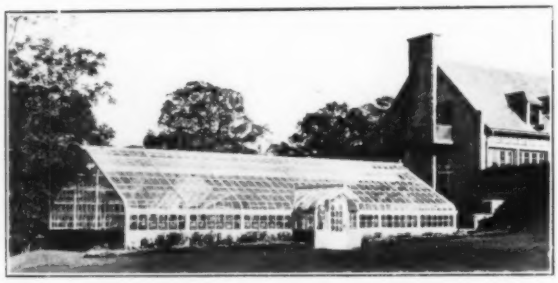
BETHLEHEM Wide-Flange

STRUCTURAL SHAPES



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WHEN your client begins to talk greenhouse, or conservatory or sunroom—then it is time to think about King Architects' Service.

We are glad to submit, without cost or obligation, rough sketches in accordance with your plans. Just send us dimensions and state the purpose of the enclosure. Meanwhile, why not get our free portfolio of King Greenhouses now serving on prominent estates?

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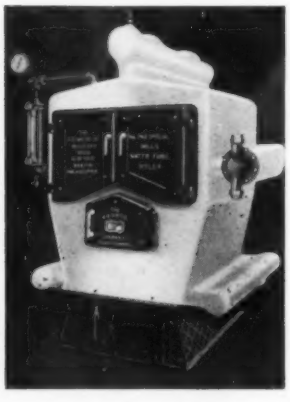
the New "Boiler-Burner Book" on Oil Burner Installation



In the development of The H. B. Smith Special Boilers for Oil Burning, a wealth of new and original data on the scientific installation of oil burners was compiled as a result of many field and laboratory tests made in close cooperation with oil burner experts. This data has been assembled in the "Boiler-Burner Book," just published, a copy of which we will gladly send you free upon request. Address, The H. B. Smith Company, Dept. E-62, Westfield, Mass.

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Expansion Casing

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The metal molding makes a precise, neat trim around window and door openings. The expanded metal wings key the plaster right up to the casing . . . and the patented *Milcor* locking clip anchors the assembly to the wood frame so it's there to stay. The *Milcor* one-piece mitre makes a perfect corner joint. Architects appreciate the beauty and permanence of *Milcor* Expansion Metal Casing . . . Builders like its ease of application.

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an important development enhancing the values of

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Write for Bulletin No. 500

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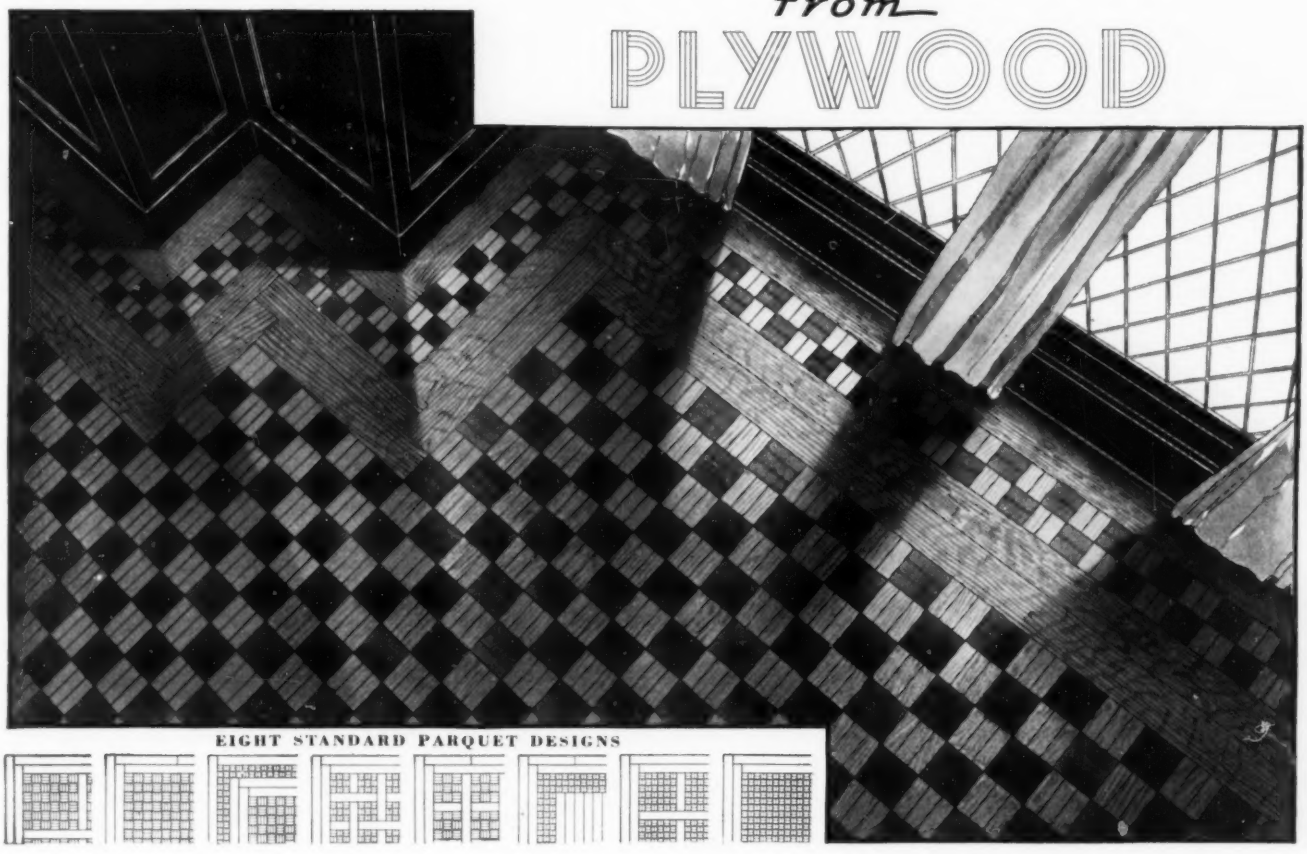

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Beautiful · Economical · Durable

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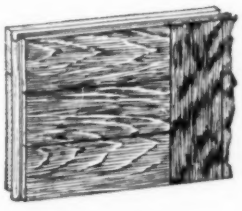
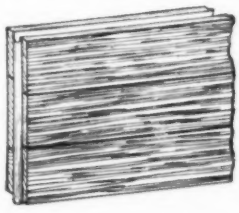
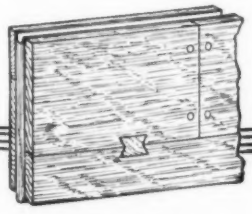
4" or 6"
widths



STRIP
8'-0" lengths
6" widths



PLANK
Random
widths and
lengths.



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The finest selected domestic and imported hardwoods, in 4" or 6" squares, are combined in continuous plywood boards, 6'-0" long. Carefully standardized tongues and grooves are cut on the plywood edges and ends. The important saving in installation time and cost is at once apparent.

Carefully matched for figure and color, sturdily fabricated and scientifically pre-finished, this new Parquet flooring brings greater beauty, durability and economy. . . We offer eight standard parquet designs. Send for our A-I-A Bulletin giving complete information.

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CREATIONS
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Every job that leaves your desk can be made a monument to your foresight. On the endurance of each structure hangs the permanence of your name . . . Stainless Steel "the eternal metal" is worthy of your trust. Not only for interior trim where its deep, rich, mirror-like lustre increases rentability and salability, but also for every structural detail down to the screws, bolts and nuts on which depends the life of the building . . . Stainless Steel adds strength, permanence and beauty to Store Fronts, Screens, Doors, Fireplaces and countless other items. Write for our booklet "Stainless in Industry." You'll find it useful.

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STAINLESS STEEL

CLASSIFIED DIRECTORY OF ADVERTISERS

Alphabetical Index to Advertisers, Page 162

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Knight, Maurice A.

Acoustics
Armstrong Cork & Insulation Co.
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Bethlehem Steel Co.
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Dahlquist Mfg. Co.
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Pierce, Butler & Pierce Mfg. Co.
Smith, H. B., Company, The, Inc.
Wood, Gar, Engineering Co.

Bolts—Door
Corbin, P. & F.

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See "Ornamental Metal"

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American Bridge Co.
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Corbin, P. & F.
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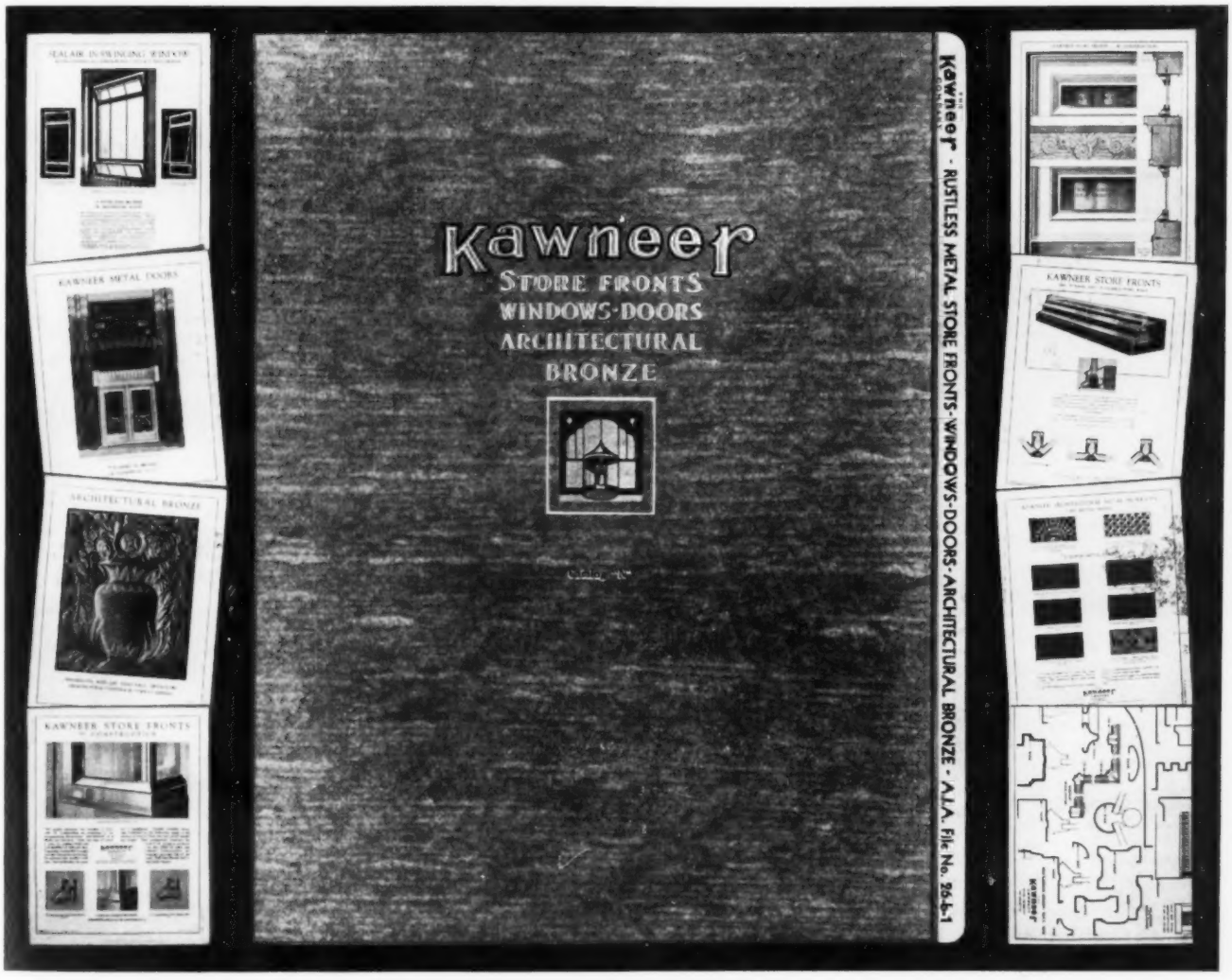
Kawneer
STORE FRONTS
WINDOWS·DOORS
ARCHITECTURAL
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Kawneer · RUSTLESS METAL STORE FRONTS · WINDOWS · DOORS · ARCHITECTURAL BRONZE · A.I.A. File No. 26-b-1

CONTAINS FULL DESCRIPTION OF OUR
SEALAIR WINDOWS, ARCHITECTURAL CASTINGS, DOORS AND STORE FRONTS OF RUSTLESS METAL

THE
Kawneer
COMPANY
NILES, MICHIGAN
AND SUBSIDIARIES

ARCHITECTS DESIGN »« KAWNEER BUILDS

Illinois Military Academy Dormitory equipped throughout with Hood Extension Garment Hangers.

No room for closets . . . but Extension Garment Hangers gave the architects, Cervin & Stuhr, Rock Island, Ill., the clever solution of the clothes storage problem. Hanger fastened on side of a combination desk and dressing table gives the needed closet facilities.

Clothes Closets Go Modern

THIS new Extension Garment Hanger replaces old-fashioned poles, nails and hooks, keeps clothes in one-third space, greatly increasing storage capacity and convenience. Makes closets neater, more attractive, easier to keep. A slight pull extends the hanger, bringing each garment into plain view. When not in use, the hanger collapses to 8-inch space, taking the garments back against the wall or door without packing or wrinlking, out of the way. Every part of the closet is made easily available, dead space converted into usable storage facilities.

Staunchly constructed of good materials, holds 12 to 32 garments without warping or sagging. Fastens to the wall or door. Beautifully finished in gun metal, bronze, or nickel, will last a life time.

Architects, see Sweet's Catalogues— C3897; Builders, Contractors, Home Owners, see Extension Garment Hangers at your hardware store or lumber yard; write for free literature and price list.

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Sargent & Company
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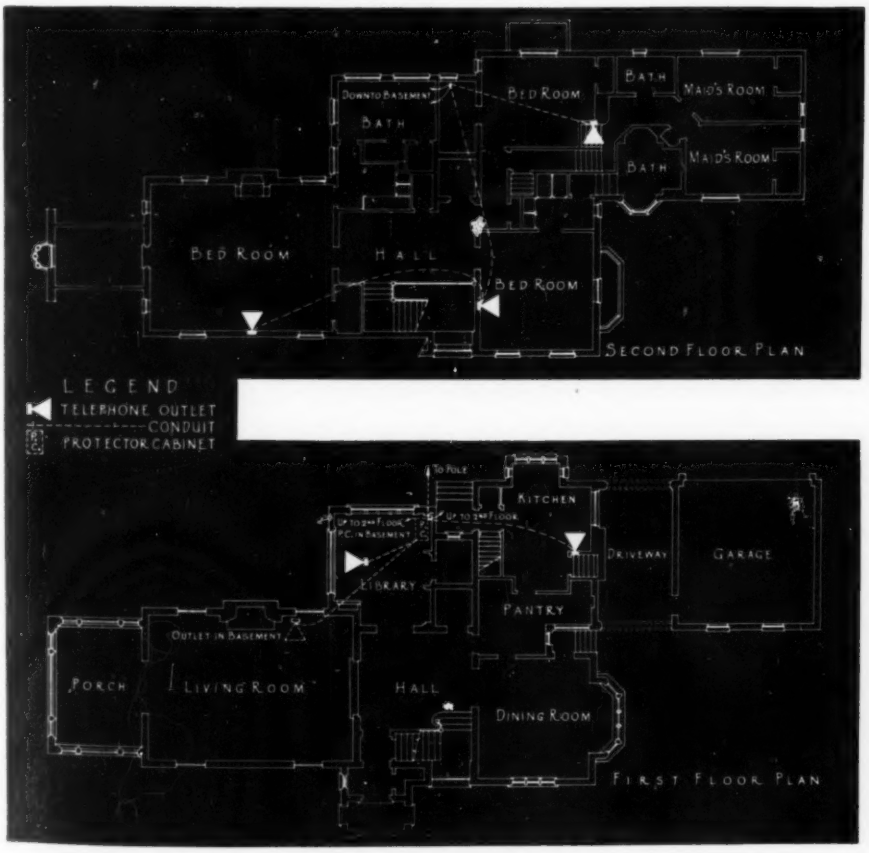
Provision is made for telephone convenience in the residence of Mr. J. R. Stewart, 2424 West Lake of the Isles Boulevard, Minneapolis, Minnesota, by built-in conduit serving six telephone outlets, including one in the basement game room. CARL A. GAGE, Architect, *Minneapolis.*

TELEPHONE CONVENIENCE, PLANNED IN ADVANCE, COSTS LITTLE, RETURNS MUCH



Few modern conveniences contribute as much to living comfort as provision for adequate telephone arrangements. Planned in advance, they yield generous dividends to the home-owner in time and energy conserved, and add little, if anything, to construction costs.

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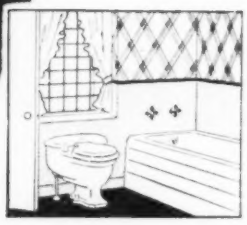
In planning the telephone arrangements for new or remodeled residences, consult your local telephone company. Their advice and assistance is given gladly, without charge. Just call the Business Office.



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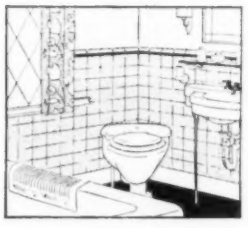

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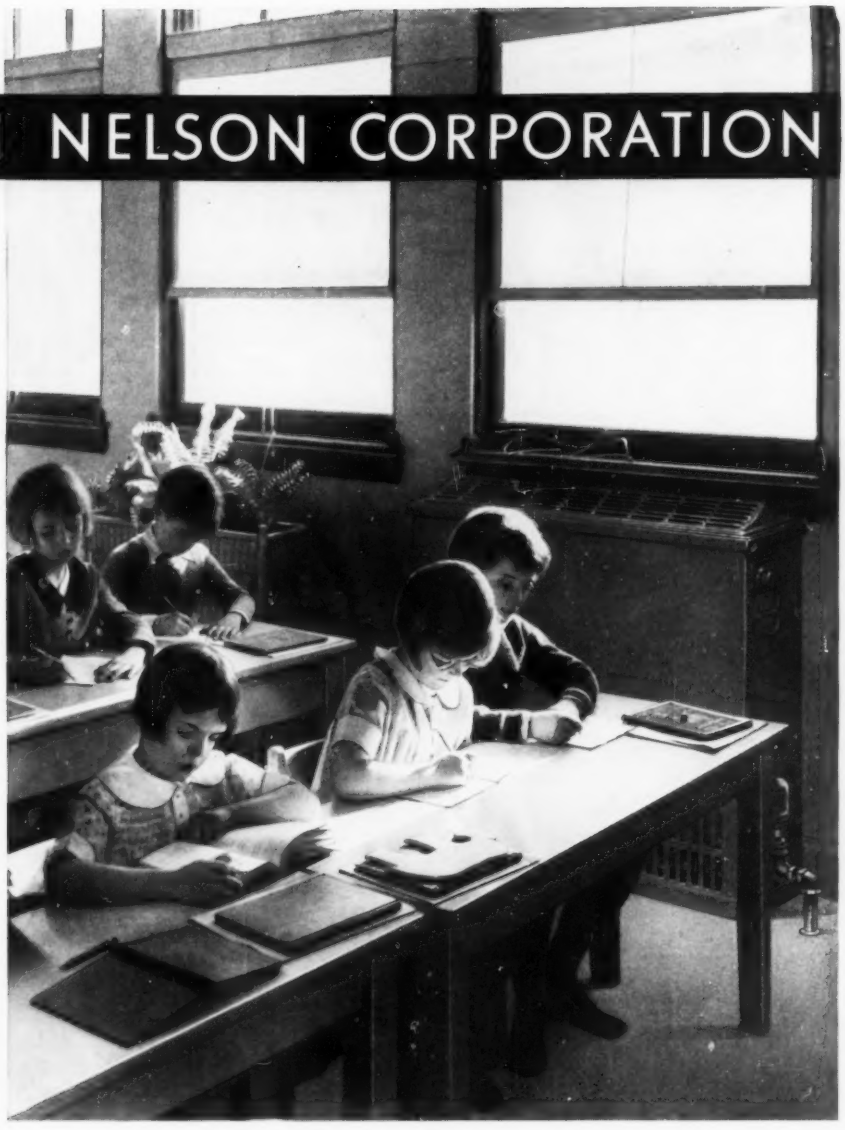

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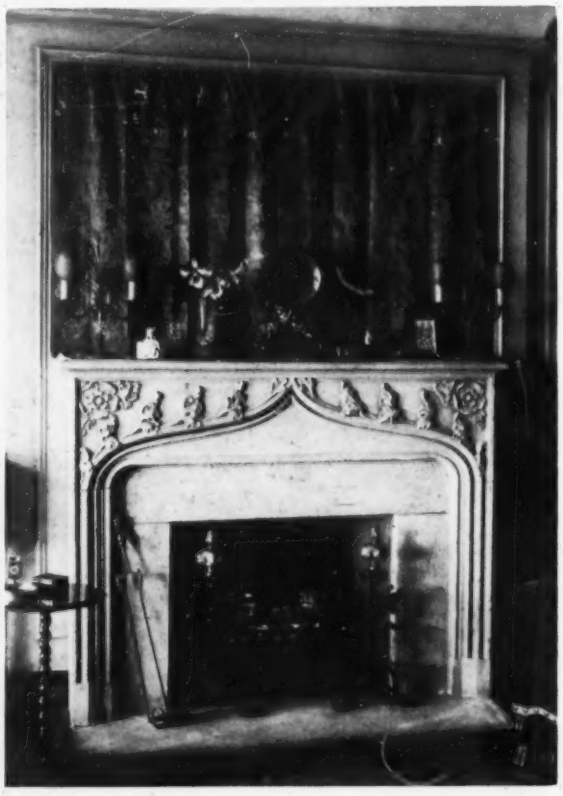

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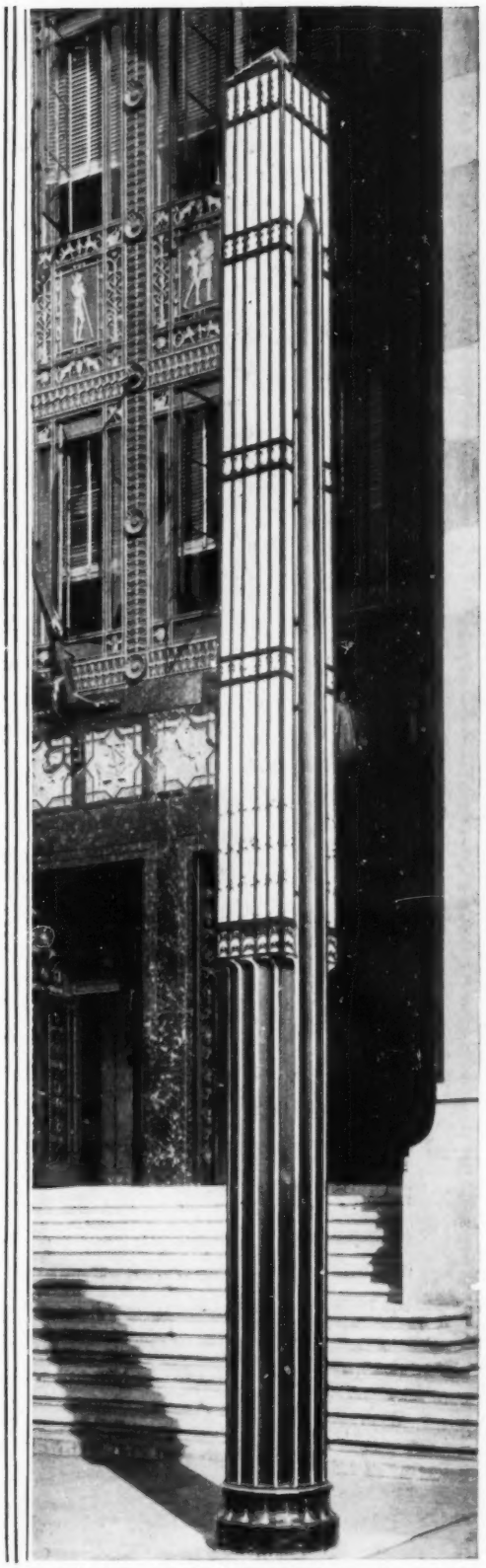

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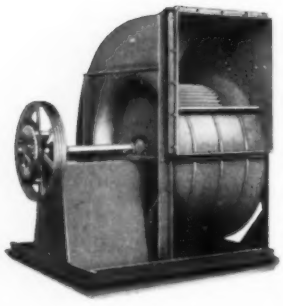

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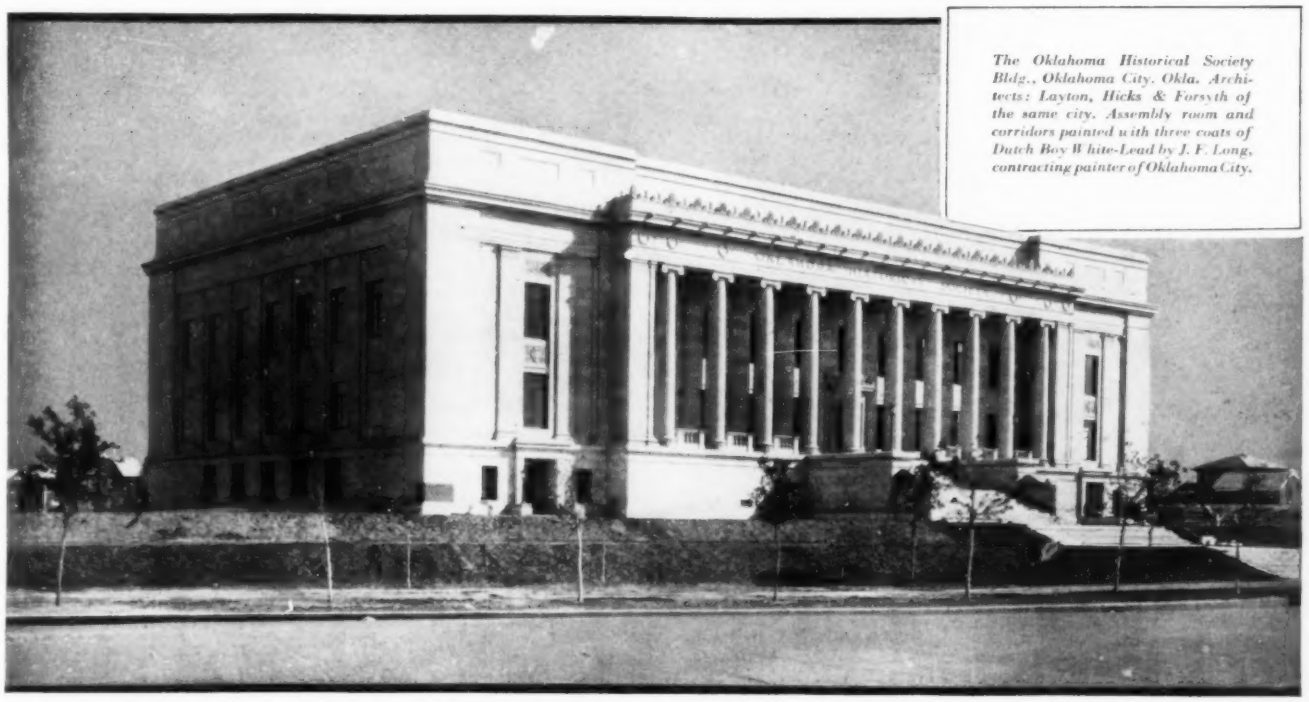

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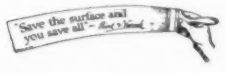

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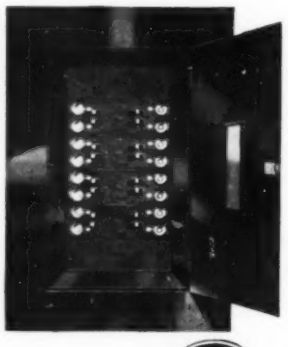

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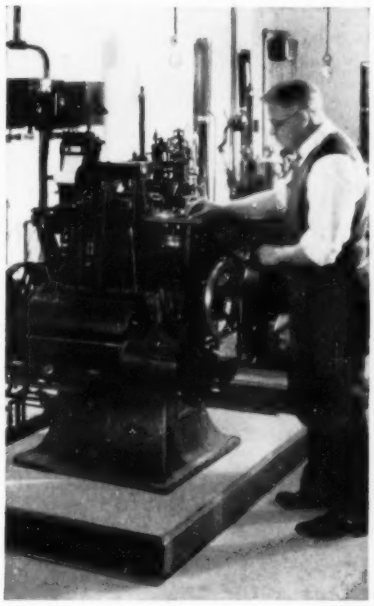

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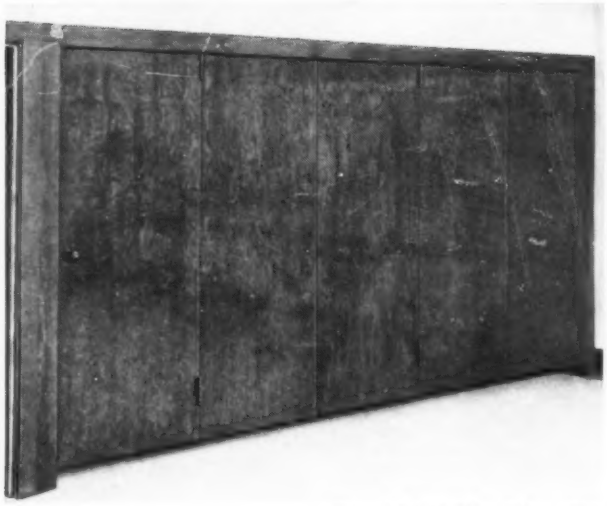
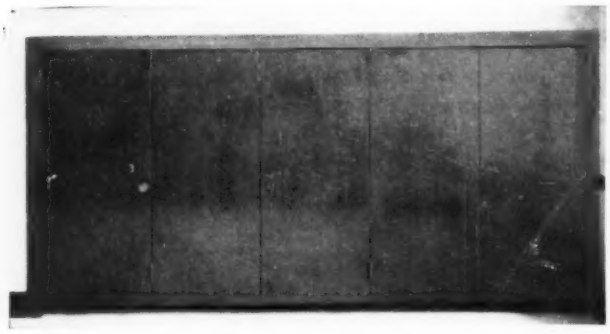


Central School Bldg., Sidney, Ohio
Architects: H. L. Loudenback & Sons, Sidney, Ohio



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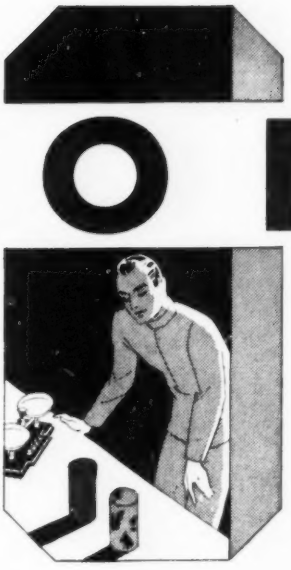

HERE is the cause of clouding (efflorescent deposits) of colored concrete floors. Moisture or mild corrosives dissolve the soluble salts (formed in all cement mixes during hydration). Evaporation carries them to and deposits them on the surface, resulting in unsightly staining and clouding of the color.

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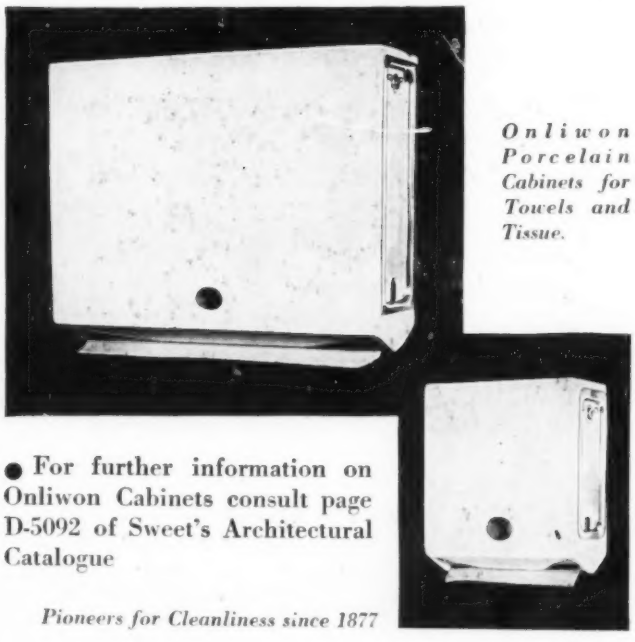

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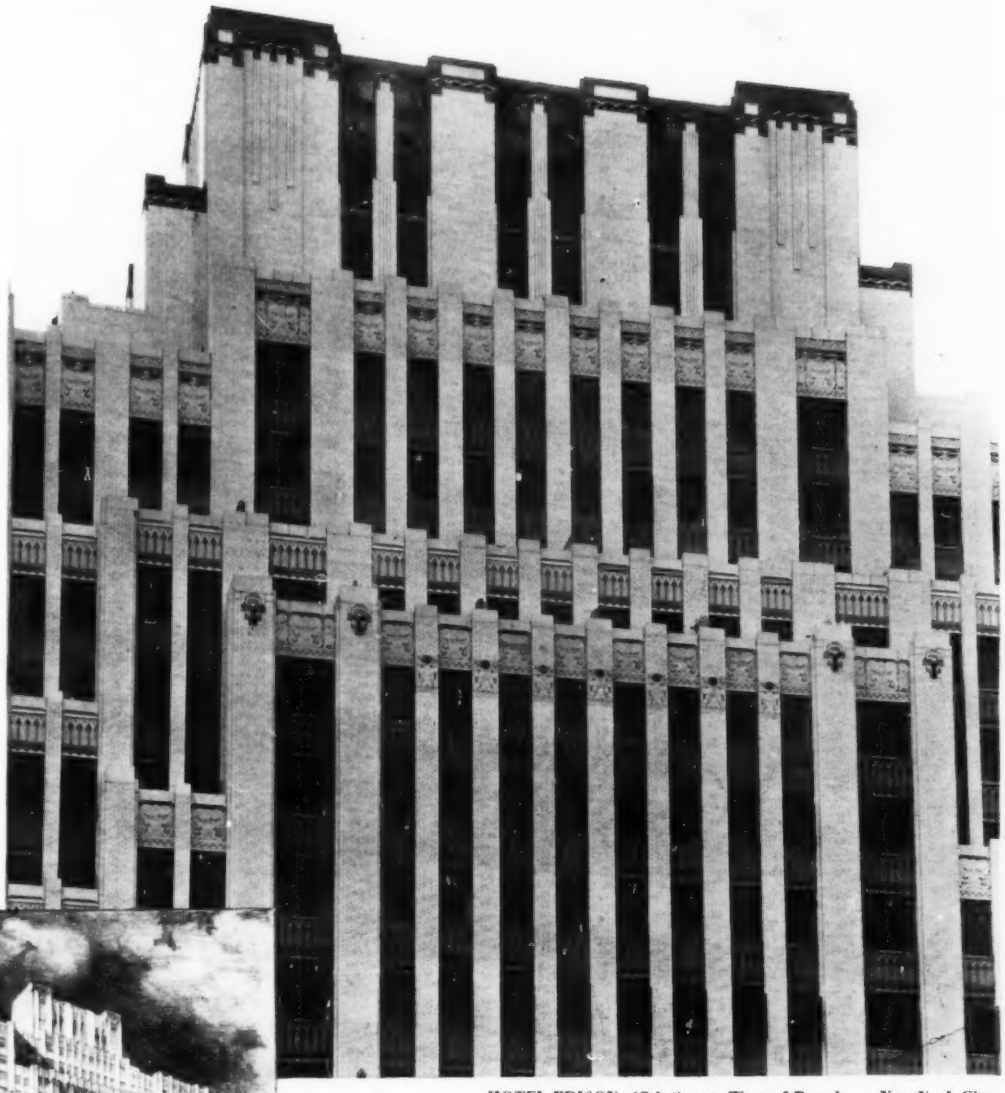

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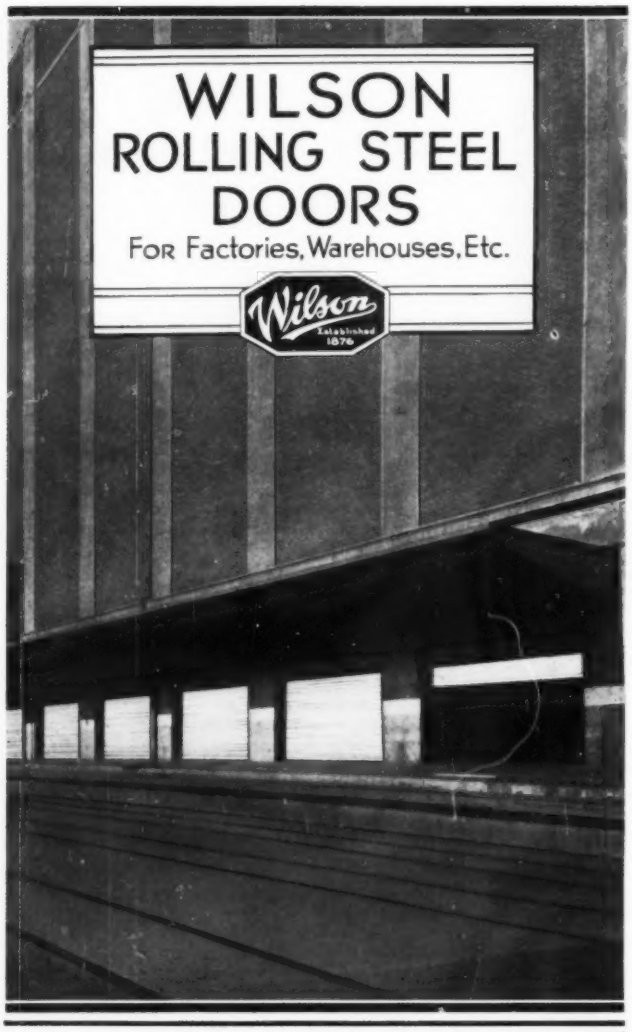

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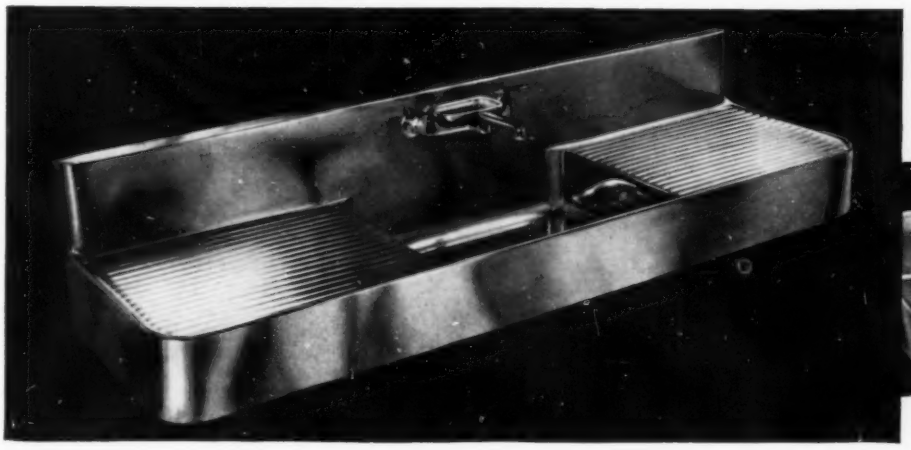
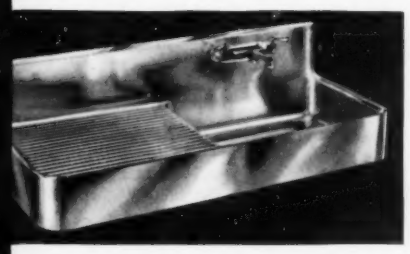


Double drain board Monel Metal kitchen sink. Made in nominal sizes of 72"x 21" and 60"x 21".



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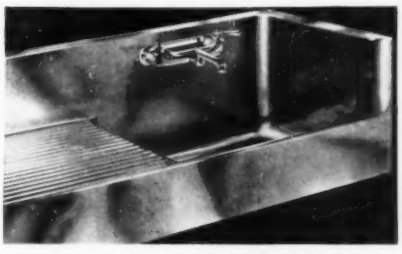

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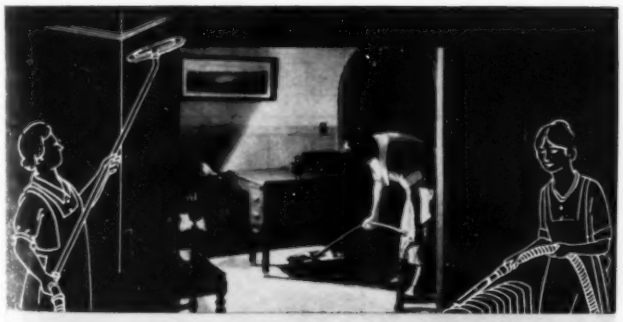

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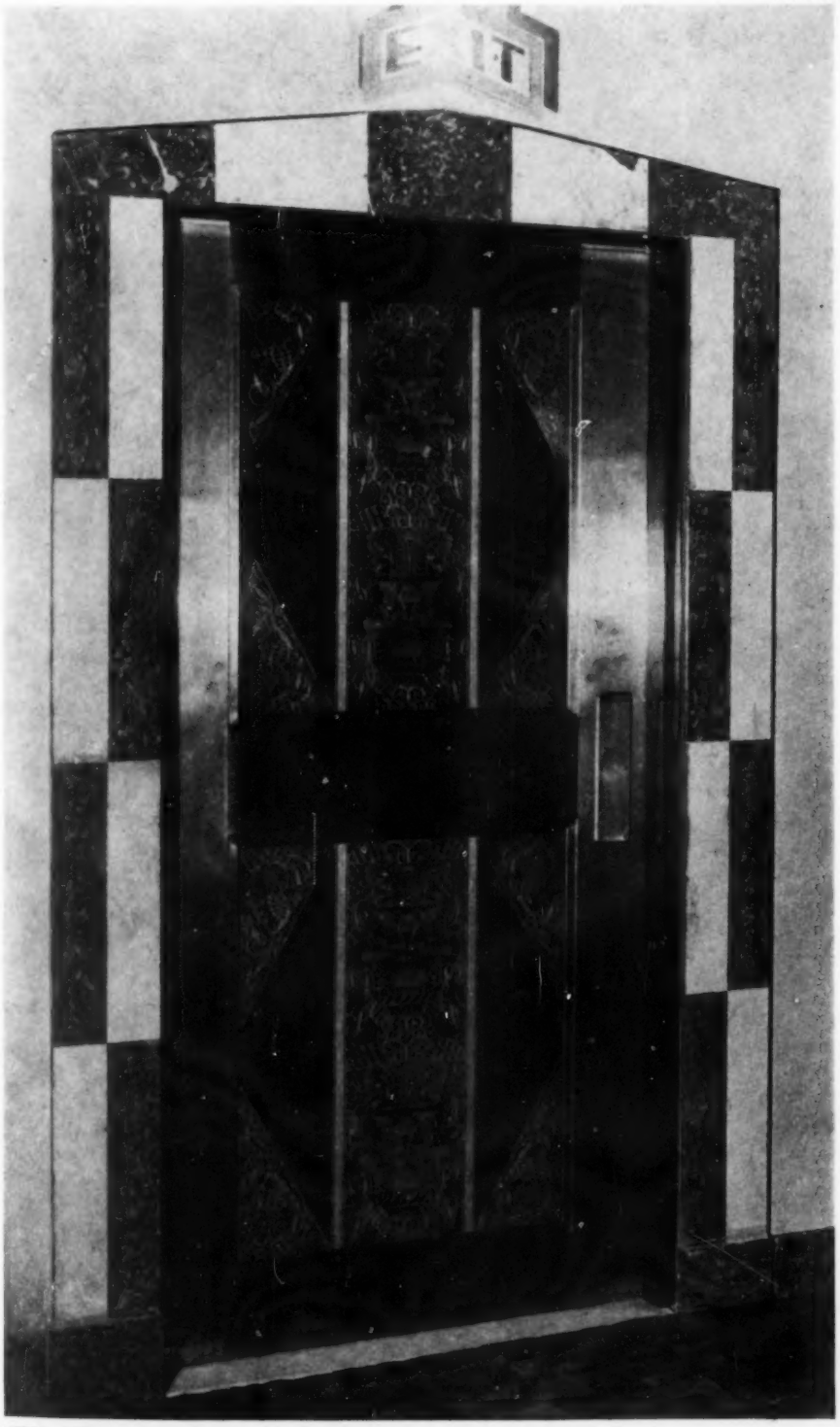
Stairway Doors in the William Len Hotel, Memphis, Tennessee. Eugene J. Stern, Little Rock, Arkansas, Architect.

Specify THORP DOORS



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The door illustrated here is typical of all first and second floor stairway doors and elevator entrances in the new William Len Hotel. They are part of the complete installation of stairway doors and elevator enclosures furnished and erected in the building by Thorp.

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A striking, modern effect has been obtained through the use of Monel Metal doors with etched panels. Stiles and rails are satin finish, flat surfaces of panels are polished, and the background of etchings are natural color. Frames and trim are dead black. Doors are of hollow construction.

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THORP FIREPROOF DOOR CO.

Minneapolis Minnesota

●

NEW CENTER BUILDING
Detroit, Michigan

Albert Kahn
Architect

J. A. Utley
General Contractor

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